



SCHOOL OF  
ENGINEERING

NGEE

ANN

POLY

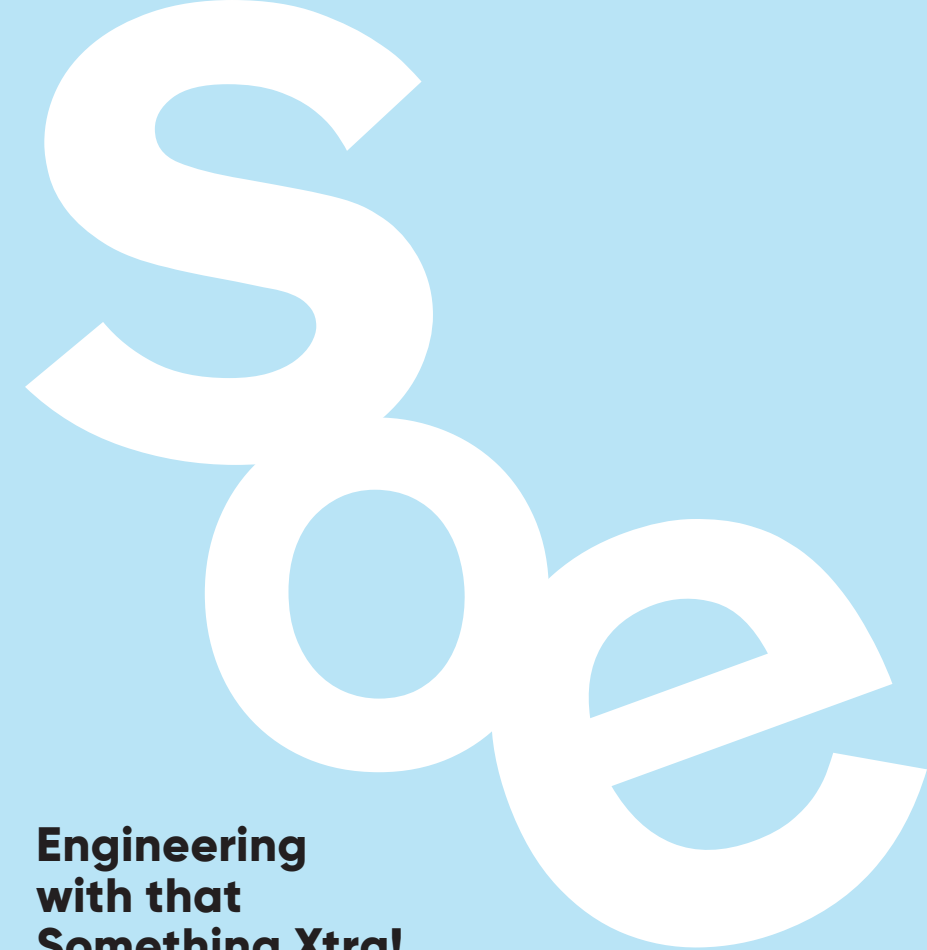


- Common Engineering Programme
- Engineering Science **Revamped**
- Aerospace Engineering **Revamped**
- Biomedical Engineering **Revamped**
- Electrical Engineering **Revamped**

- Electronic & Computer Engineering **Revamped**
- Mechanical Engineering **Revamped**
- Mechatronics & Robotics **Revamped**
- Offshore & Sustainable Engineering **Revamped**



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## Engineering with that Something Xtra!

From exciting industry projects, cutting-edge robotics research, to the latest Generative AI technologies, you'll find engineering with that something xtra at Ngee Ann Polytechnic's School of Engineering (SoE). Engineer your unique learning journey with our flexible pathways, which include year-long industry immersion, university pathway programmes, and a Second Major in Business. Explore our top-notch courses – like the Common Engineering Programme and Diploma in Engineering Science – and turn your ideas into impactful change!



# 8 Diplomas + 1 Common Engineering Programme

## Common Engineering Programme (N71)

- Gain exposure to various engineering fields before making an informed choice
- Towards the end of your first semester, choose from one of our 8 engineering diplomas

## 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, Operational Technology Cybersecurity or Space Technology

## Aerospace Engineering (N65)

- Drive the future of aviation with this course, gaining cutting-edge skills in data analytics, artificial intelligence, and machine learning
- With Singapore's thriving aerospace industry, be poised for rewarding careers!
- Choose to focus on either Avionics or Mechanical engineering.

## 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)

- Power the future with Singapore's only electrical engineering diploma focused on sustainability and the green economy
- Customise your learning with a wide range of electives, capstone projects, the one-year Industry Immersion Pathway, or explore specialisations in Smart Energy System, Sustainable Power Engineering or one of the three Cross-Disciplinary Specialisations
- Pursue a Second Major in Business for expanded career pathways and opportunities!

## Electronic & Computer Engineering (N44)

- Shape the future of intelligent systems with a strong foundation in electronic circuit design, software programming, computer networks, and other cutting-edge technologies
- Choose to specialise in Artificial Intelligence of Things (AIoT), Microelectronics, Operational Technology Cybersecurity or Space Technology, or deepen your real-world experience through a one-year industry immersion
- Top up your diploma with a Second Major in Business for more further studies and career opportunities!

## Mechanical Engineering (N41)

- Broad-based curriculum focused on sustainability, preparing you for diverse careers in precision engineering, energy and chemicals, engineering services, and more
- Choose from one of three Cross-Disciplinary Specialisations, Automation Design Engineering or Mobility Design Engineering

## Mechatronics & Robotics (N50)

- Delve into autonomous mobile and collaborative robotics, and gain hands-on skills to drive innovation in robotics engineering and automation
- Choose to specialise in one of three Cross-Disciplinary Specialisations, Autonomous Systems or Automation & Industrial Cybersecurity, or deepen your real-world experience through a one-year industry immersion
- Access more further studies and career opportunities with a Second Major in Business!

## Offshore & Sustainable Engineering (N42)

- 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

## What Industry Says

"At Siemens, we believe in empowering young talent with the right skills and real-world experience. Through co-developing a cybersecurity course that aligns with CSA requirements and offering hands-on internships for students in the Mechatronics & Robotics course, we are equipping them with critical capabilities in software-defined automation. This will prepare them for a smarter, safer and more resilient industrial future."

**Isabel Chong**  
Senior Vice President  
Siemens Digital Industries, ASEAN

"Sustainability is key to Grundfos' DNA, and our partnership with NP reflects our commitment to cleaner, energy-efficient technologies that reduce energy use and carbon footprints in the built environment. We look forward to inspiring students to advance the region's sustainability goals."

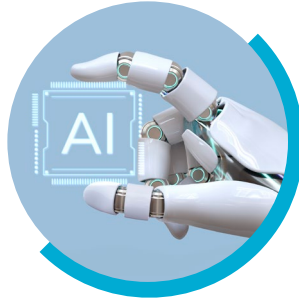
**KENTH HVID NIELSEN**  
Senior Global Marketing Director  
Commercial Buildings Services  
Grundfos

# Why Choose SOE



## An Xtra Edge

Stretch your potential with prestigious scholarships and our talent development programmes. Plus, get global-ready through overseas internships and immersion programmes to vibrant cities such as Shanghai and Ho Chi Minh City.



## On Track for AI Success

**New**

Build in-demand AI competencies throughout your course of study. By applying AI knowledge to hands-on projects, you'll graduate AI-fluent and ready to take your engineering skills to the next level!



## Strong Sustainability Focus

With our comprehensive on-campus green energy infrastructure, there's no better place to acquire the skills to seize opportunities in the growing renewable energy field.

# Own Your Learning



## Chart Your Path

Choose where and how you learn – so you gain the exposure and build the portfolio you want. This way, you'll be well positioned for your dream career!



## Double Major Programme

Get a competitive edge by pursuing a Second Major in Business\*! This dual qualification will unlock new opportunities for your career and further studies.

\*For selected students only



## Your University Advantage

Start your uni studies ahead of your peers, thanks to SOE's University Pathway Programmes with NUS and SUTD! Both pathways let you earn credits that count towards your future degree with either of two prestigious unis, all while studying at NP!

## Get Future-Ready **New**

Level up in the dynamic engineering landscape of tomorrow with our new Cross-Disciplinary Specialisations in Space Technology, Operational Technology Cybersecurity, and AI for Engineers! You'll develop transferable skills to address real-world challenges in emerging tech fields.



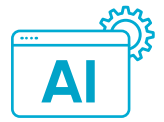
### Space Technology

Gain a head start in the growing space tech industry with in-demand skills across aerospace and smart infrastructure sectors. Partnering NUS, you'll get the chance to build your own miniature satellite – fitting within the size of a soda can – for your Capstone Project!



### Operational Technology Cybersecurity

Tackle vulnerabilities across multiple sectors as a new-gen engineer! With a strong foundation in specialised cybersecurity skills, you'll safeguard critical industries in the fields of energy, water, transport, healthcare, and beyond!



### AI for Engineers

As AI becomes a key enabling technology across engineering sectors, stay ahead of the curve by building your AI proficiency. Dive into areas such as machine and deep learning plus neural networks and discover how they can solve complex engineering problems!

## Partnerships with the Best in the Business

Gain real-world experience, expand your professional network, and build skills for a bright future!

AVEVA

aws academy

BECKHOFF

cisco  
Networking  
Academy  
Partner

DELTA

EQUIP

FESTO

FORTINET

GRUNDFOS

Hanwha  
Offshore Singapore

HOPE  
technik

HYUNDAI  
MOTOR GROUP

JET AVIATION  
A GENERAL DYNAMICS COMPANY

LKH  
PRECICON

meiban®  
we shape your ideas

MOOREAST

MooVita

nl

NUHS  
National University  
Health System

OMRON

PaxOcean

SCHAEFFLER

Seatrium

SIA ENGINEERING  
COMPANY

SVC

SIEMENS

ST Engineering

UMC

UNIVERSAL ROBOTS

YINSON  
GreenTech

# go flex at SOE



Scan this QR code for more details about Go FLEX

Shape a learning journey that matches your unique interests with NP's Go FLEX (Flexible Learning EXperience) and get a head start on your further studies and career!



## Go BROADER

### Personalised Learning Pathway (PLP) Minor

With **12 Minors** and **> 50 Learning Units**, unlock possibilities by pairing your diploma with one of the following Minors:

- Applied Psychology
- Cybersecurity
- Data Analytics & AI
- Entrepreneurship
- Environmental Sustainability
- Foreign Languages
- Global Readiness
- Robotics & Innovation
- Social Leadership
- Social Media Marketing
- Sustainable Care
- User Experience Design

Check out the wide range of LUs at [www.np.edu.sg/plp](http://www.np.edu.sg/plp)!



## Go GLOBAL

### Overseas Programmes

Whether it's an **Overseas Immersion Programme**, **Overseas Domain Internship**, **Global Entrepreneurial Internship Programme**, **Youth Expedition Programme** or **Regional Learning Journey**\*, you'll see the world in brand new ways!

\*All Year 1 students can look forward to a Regional Learning Journey.



## Go FURTHER

### Passion+ Pathways

Kickstart your entrepreneurial journey or venture into Southeast Asia with confidence through our signature **Global Entrepreneurial Internship Programme** and **Southeast Asia Immersion Leadership Programme**.



## Go DOUBLE

### Double Major

Be among the first to graduate with a **Double Major** to supercharge your career and further study options! Selected students can pair a technical diploma with a **Second Major in Business**\*.

\*EE, ECE and MR students can look forward to pursuing a Double Major in Business.



## Go DIRECT

### University Pathways

From early uni exposure to module exemptions, NP's partnership with **NUS** and **SUTD** lets you fast-track your way to a degree!

BME and ES students can look forward to applying to the NP-NUS Pathway and Poly SUTD Scholars Programme, while ECE, EE, ME, AEG, OSE, and MR students can apply to the NP-NUS Pathway.



## Go DEEPER

### Specialisations

Deepen your expertise in engineering and technology with SOE's **16 specialisations**. From **AI for Autonomous Systems** to **Smart Energy** and **Space Technology**, you'll gain the skills to design, build, and innovate solutions that drive the future of engineering!



## Go LONGER

### One-year Industry Immersion

Partnering top-notch organisations, SOE lets you build skills and professional networks with our **one-year internship programmes**.



Get latest updates on course



# N71

## Common Engineering Programme

- The best way to **explore different engineering fields** is to discover your interests before deciding on one of eight diplomas
- **Common foundational modules** equip you with broad-based fundamental knowledge and skills in engineering
- **Unique Induction Programme** provides early industry exposure for insights to help you make an informed course choice

## WHAT THE COURSE IS ABOUT

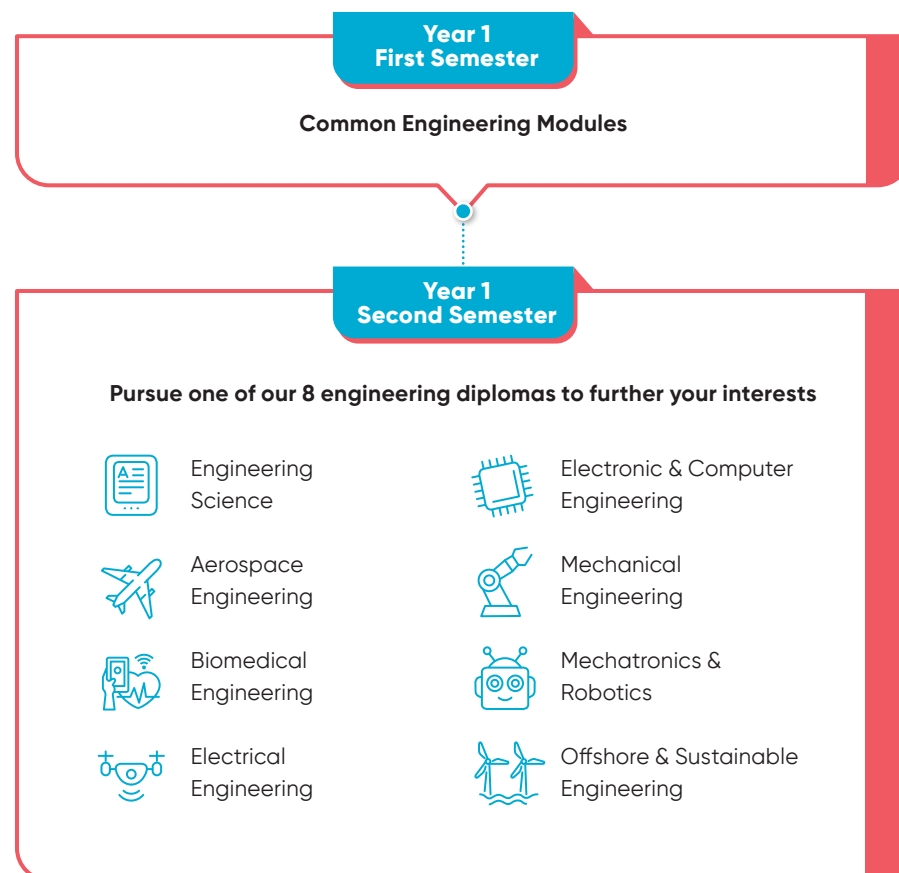
If you are keen on engineering but unsure which course suits you, the Common Engineering Programme (CEP) may be the perfect fit. Through CEP, you will gain exposure to different engineering domains, helping you make a more informed course choice.

In your first semester, experience our unique Induction Programme, which includes learning journeys, industry visits, dialogues, and career advice from experts. The Diploma Exposure Programme will also give you an overview of the exciting career pathways that lie ahead!

Furthermore, you will 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!

Towards the end of your first semester, you can choose from one of our eight engineering diplomas.

## OVERVIEW OF YOUR CEP JOURNEY



## WHAT YOU WILL LEARN



### YEAR 1

- Engineering Mathematics 1
- Electrical Engineering Fundamentals
- Mechanical Engineering Fundamentals
- Programming
- Career & Engineering Professional Preparation
- Confident Communication: Find Your Voice (VOICE)^
- Innovation Made Possible^
- Health & Wellness^
- English Language Express^^

You will select your preferred diploma towards the end of your first semester. Refer to the module listing in the respective diploma pages for more details:

- Engineering Science (pg 11)
- Aerospace Engineering (pg 17)
- Biomedical Engineering (pg 22)
- Electrical Engineering (pg 27)
- Electronic & Computer Engineering (pg 32)
- Mechanical Engineering (pg 37)
- Mechatronics & Robotics (pg 42)
- Offshore & Sustainable Engineering (pg 47)

### 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.



### FINDING THE RIGHT PATH

"When I first joined CEP I was undecided on which diploma to pursue. Through the Diploma Exposure Programme and an industry visit to Micron, I witnessed first-hand the cutting-edge processes involved in microelectronics manufacturing. These experiences solidified my choice to pursue the Diploma in Electronic & Computer Engineering!"

**Timothy Koh**

Currently a year 3 Electronic & Computer Engineering student

## 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:      | 1-6             |
| Biology                                 |                 |
| Biotechnology                           |                 |
| Chemistry                               |                 |
| Computing/Computer Studies              |                 |
| Design & Technology                     |                 |
| Electronics/Fundamentals of Electronics |                 |
| Physics                                 |                 |
| Science (Chemistry, Biology)            |                 |
| Science (Physics, Biology)              |                 |
| Science (Physics, Chemistry)            |                 |

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



Get latest updates on course



# N93

## 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, Data Analytics & Security, Operational Technology Cybersecurity** New or **Space Technology** New
- Develop valuable **applied R&D** experience at top local universities and research institutes that will build your expertise and network
- Opportunities to secure **prestigious scholarships** from PSC, A\*STAR, DSO 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, electronic and mechanical engineering; as well as data analytics.

### Choose from Exciting Pathways

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.

### Design Your Own Learning

In your third year, you can choose between four exciting specialisations to deepen your knowledge in emerging technologies:

- **AI for Autonomous Systems**  
Develop the skills to create autonomous system solutions for the transportation sector. Explore AV technology and gain hands-on experience with smart urban mobility projects.
- **Data Analytics & Security**  
Master big data and build expertise in data analytics and security management for cloud platforms – skills that are highly sought after in today's digital landscape.
- **Operational Technology Cybersecurity** **New**  
As new-gen engineers, be equipped with domain-specific cybersecurity competencies to support vulnerabilities in the future workforce.
- **Space Technology** **New**  
Gain skills in areas like satellite design and systems engineering to meet the increasing demand across aerospace and smart infrastructure sectors.

Alternatively, you can opt for:

- **Industry Immersion Pathway**  
Gain real-world experience and expand your professional network as you take on a one-year internship or project with one of our renowned partner organisations
- **University Pathway Programmes**  
Start your uni studies ahead of your peers, thanks to our University Pathway Programmes with NUS and SUTD! Both pathways let you read uni modules, allowing you to earn credits that count towards your future degree with either of two prestigious unis!

### 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.

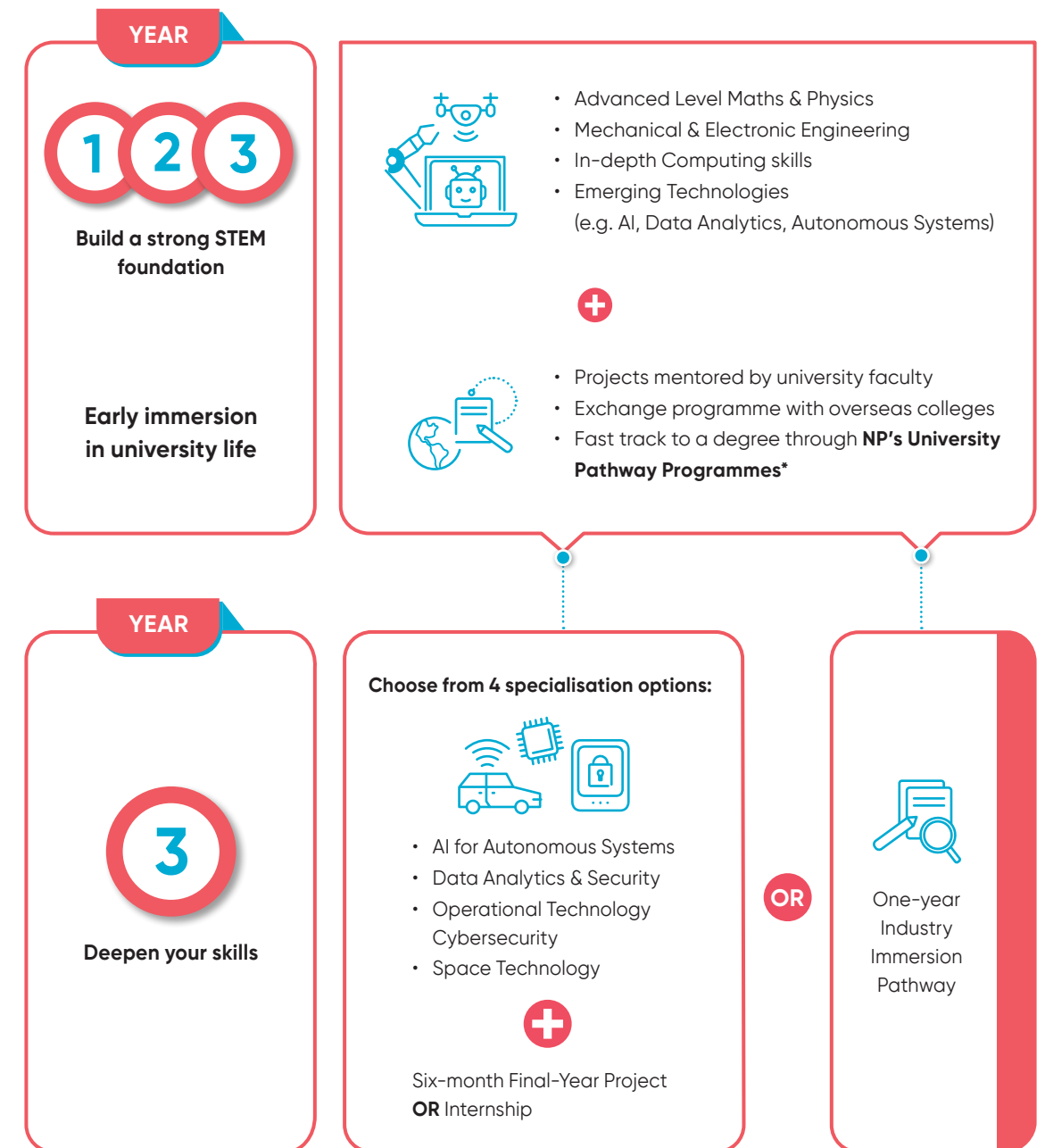
**If you're looking for an Engineering diploma that attracts the brightest minds, look no further!**

**>10** ES graduates topped their cohorts to clinch the Ngee Ann Kongsu 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), CSIT Diploma Scholarship, DSTA Polytechnic Scholarship, DSO Diploma Scholarship) which offer R&D internship opportunities

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

## OVERVIEW OF YOUR ES JOURNEY



\*For selected students only

## WHAT YOU WILL LEARN

### YEAR 1

- AC Circuits
- Analogue Electronics
- Applied Mathematics 1
- Applied Mathematics 2
- Digital Fundamentals
- Electrical Engineering Fundamentals
- Fundamental Electronic & Electrical Skills
- Mechanical Engineering Fundamentals
- Programming
- Career & Engineering Professional Preparation
- Innovation Made Possible<sup>^</sup>
- Confident Communication: Find Your Voice (VOICE)<sup>^</sup>
- Health & Wellness<sup>^</sup>
- English Language Express<sup>\*\*</sup>

### 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<sup>^</sup>

### YEAR 3

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

#### 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

#### Operational Technology Cybersecurity Specialisation

- Cyber Governance, Risk & Compliance
- Fundamentals of OT Cybersecurity
- Industrial Automation

#### Space Technology Specialisation

- Capstone Project: CanSatellite
- Satellite Systems Design and Engineering

#### Industry Immersion Pathway

- One-year Internship OR One-year Project



<sup>^</sup> 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.

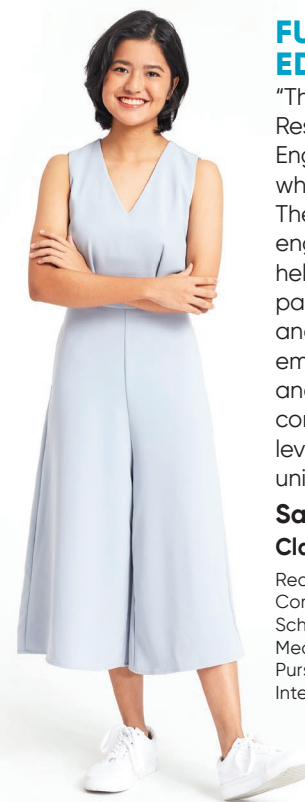
<sup>\*\*</sup> For selected students only

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 recognise ES for a wide range of their degree programmes. SUTD offers conditional admission for students in the NP-SUTD Pathway, along with module exemptions for ES graduates.

NUS provides early admission for selected ES students as early as Year 2 and allows them to take NUS modules during their studies at NP, earning additional credit exemptions. With your strong ES foundation, you can also apply for a variety of degree programmes at overseas universities.



### FURTHER EDUCATION PREP

"The strong focus on Research & Design in Engineering Science was what drew me to the course. The exposure to different engineering disciplines helped me discover my passion for data science and AI research. With an emphasis in mathematics and physics I felt more confident tackling higher level courses currently in university!"

#### 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 Artificial Intelligence & Data Science.

### 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.



#### Joshua Tan Class of 2019

Recipient of the Home Team Science & Technology (HTX) Scholarship. Pursuing a degree in Physics with a minor in Computer Science at NUS.



#### Kellie Sim Class of 2020

Pursuing a PhD in Human-AI interaction and Mental Health under the A\*STAR Computing and Information Science Scholarship.



#### 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.



#### 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.



#### Goh Jin En Jeremy Class of 2025

Recipient of the Ngee Ann Polytechnic Outstanding Achievement Award. Will be pursuing a degree in Computer Engineering 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.



**Dr Lim Leh Woon**

**Class of 2014**

Scientist in the Photonics team at A\*STAR's Institute of Microelectronics



**Zenas Lim**

**Class of 2015**

Senior AI Product Manager at Boston Consulting Group



**Foo Fang Wei**

**Class of 2016**

Solutions Architect at ST Engineering



**Soon Qing Rong**

**Class of 2017**

Engineer at DSTA's Command, Control and Communications (C3) Development Programme Centre



### DEVELOPING A STRONG RESEARCH FOUNDATION

"ES introduced me to the world of research which was pivotal in my academic journey. The early opportunities provided for independent research instilled in me a passion for discovery and innovation".

**Gokul Nathan**

**Class of 2016**

Pursuing a PhD in Electrical and Computer Engineering at the University of Washington, USA. Co-founder and CEO of Guide Air LABS.

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| Biotechnology                           |                 |
| Chemistry                               |                 |
| Computing/Computer Studies              |                 |
| Design & Technology                     |                 |
| Electronics/Fundamentals of Electronics |                 |
| Physics                                 |                 |
| Science (Chemistry, Biology)            |                 |
| Science (Physics, Biology)              |                 |
| Science (Physics, Chemistry)            |                 |

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### CONTACT US

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Get latest updates on course



# N65

## Diploma in Aerospace Engineering

- Gain **sought-after digital skills** in additive manufacturing, data analytics, artificial intelligence, machine learning, robotics and drones
- Choose to focus on either Avionics and Mechanical in Year 2 and one of our new **Cross-Disciplinary Specialisations in Year 3**:
  - AI for Engineers
  - Operational Technology Cybersecurity
  - Space Technology
- 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

Fascinated by flying machines? Dream of shaping next-generation aircraft? Join our Diploma in Aerospace Engineering (AEG) and power the future of aviation.

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 co-delivered with SIA Engineering Company: Digital Maintenance and Repair & Overhaul Application. 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!

### Two Exciting Options

In your second year, you can choose from two options:

- **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.



### Cross-Disciplinary Specialisations that Pack a Punch! **New**

To get you future-ready for the dynamic engineering landscape, SOE's brand-new specialisations will give you a distinct edge.

- **AI for Engineers**  
Develop deep, domain-specific AI expertise by gaining skills in machine learning, neural networks and deep learning.
- **Operational Technology Cybersecurity**  
Acquire cybersecurity competencies to keep industrial operations and critical infrastructure like transport and healthcare secure.
- **Space Technology**  
Gain frontier skills in space tech! Learn about satellite design and systems engineering to meet the increasing demand across aerospace and smart infrastructure sectors.

### Strong Industry Links

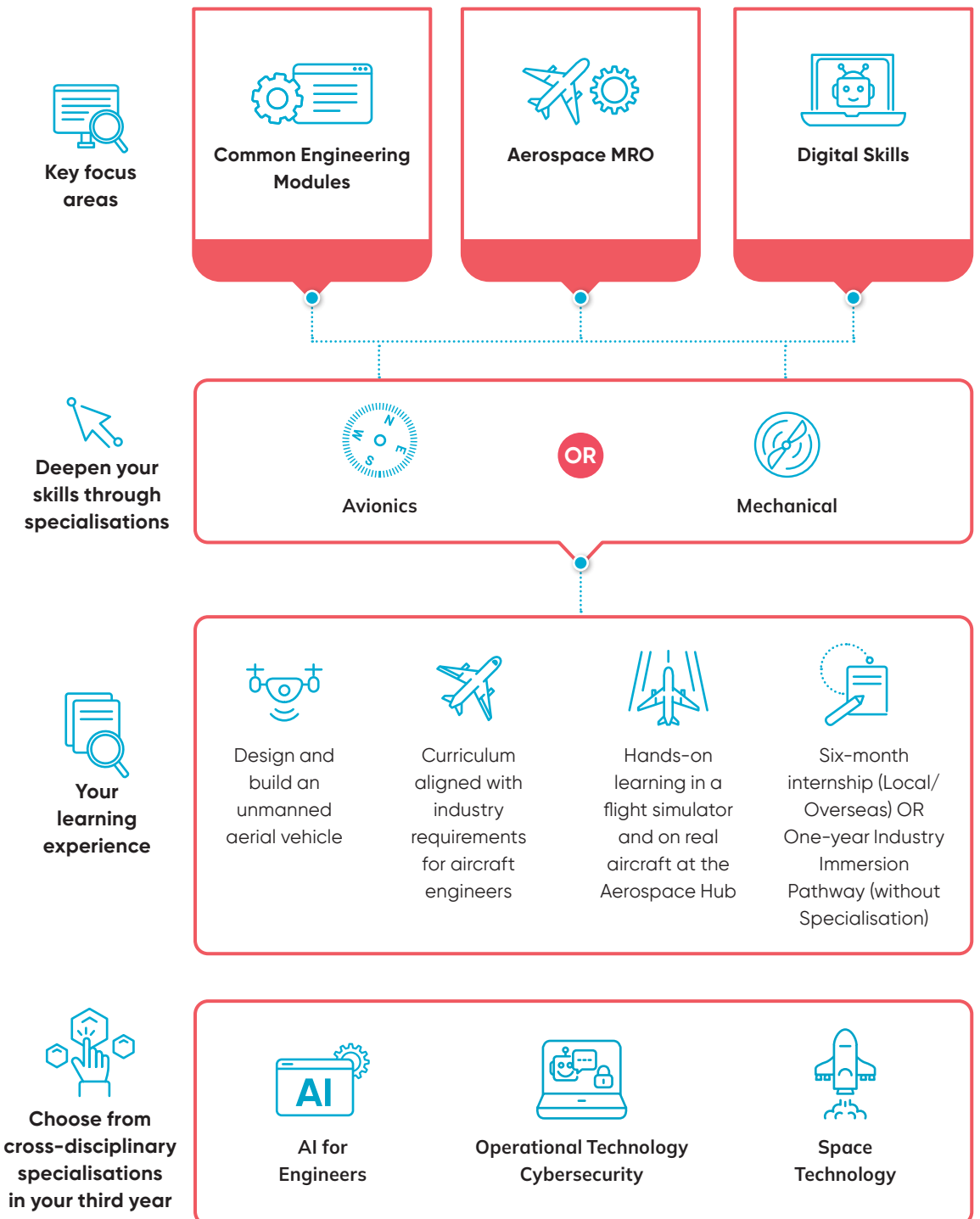
Our strong links with the industry will provide you with real-world learning experiences. With some modules co-developed and co-delivered by our industry partners, you will gain valuable insights into the trends that are shaping the aerospace sector.

You will also get opportunities to apply your skills on exciting projects. For example, design and build an unmanned aerial vehicle to explore applications for this technology!

In your final year, choose to either embark on a six-month local or overseas internship with companies like SIA Engineering Company, Collins Aerospace, Pratt & Whitney, ST Engineering, and Thales Solutions Asia; or the Industry Immersion Pathway for a year of hands-on experience. Both options provide real-world exposure to give you a strong head start in your further studies and career.

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

- Aerospace Fundamentals
- Engineering Mathematics 1 & 2
- Electrical Engineering Fundamentals
- Mechanical Engineering Fundamentals
- Programming
- Career & Engineering Professional Preparation
- Confident Communication: Find Your Voice (VOICE)^
- Innovation Made Possible^
- Health & Wellness^
- English Language Express^^

#### Avionics Option

- Analogue Electronics
- Digital Fundamentals
- Fundamental Electronic & Electrical Skills

#### Mechanical Option

- Thermofluids
- Electrical & Electronics Technology
- Materials & Manufacturing Technology

### YEAR 2

- Aero360: Human Factors, Law & Sustainable MRO
- System Modelling & Control
- World Issues: A Singapore Perspective^

#### Avionics Option

- Aircraft Data Communications & Networking
- Aircraft Material & Maintenance Practices
- Aircraft Electrical & Electronics
- Aircraft Navigation & Surveillance Systems
- Applied Digital Electronics
- Avionics Maintenance Practices
- Object-oriented Programming

#### Mechanical Option

- Advanced Thermofluids
- Aircraft Maintenance Practices
- Aircraft Structures & Materials
- Applied Mechanics
- Aircraft Propulsion Systems
- Engineering Drawing Fundamentals
- Engineering System Design
- Strength of Materials

### YEAR 3

- Aerial System Design & Integration
- Digital Maintenance, Repair & Overhaul Application
- Final-year Project
- Six-month Internship (Local/Overseas)
- Project ID: Connecting the Dots^
- Quality System & Analytics

#### Avionics Option

- Aircraft Electrical & Instrumentation Systems
- Computer Vision in Aviation

#### Mechanical Option

- Engine Maintenance, Repair & Overhaul
- Aircraft Mechanical Systems

#### Industry Immersion Pathway

- One-year Internship OR One-year Project

#### AI for Engineers Specialisation

- Fundamentals of Machine Learning
- Fundamentals of Neural Networks and Deep Learning
- Integrated Projects in Machine Learning

#### Operational Technology Cybersecurity Specialisation

- Cyber Governance, Risk & Compliance
- Fundamentals of OT Cybersecurity
- Industrial Automation

#### Space Technology Specialisation

- Capstone Project: CanSatellite
- Satellite Systems Design and Engineering

^ 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.



**Jeremy Tan**  
**Class of 2023**

Recipient of the Ministry of Transport Family Beacon Scholarship and currently pursuing Mechanical Engineering with a minor in Business Analytics at NUS



**Taryn Kang**  
**Class of 2024**

Pursuing Electrical Engineering with specialisation in Advanced Electronics at NUS

## CAREER

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

- Quality Engineer
- Technical Service Engineer
- Workshop Engineer
- Senior Technician (Engine/Component Repair & Overhaul)
- Senior Technician (Avionics/Mechanical)

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.

### SAF-Polytechnic Sponsorship **New**

You can also start your military aviation career in your final year at NP! Sign up for the SAF-Polytechnic Sponsorship and look forward to a role in keeping our Air Force's aircraft flying high.



**Denzel Lee**  
**Class of 2015**

Chief Technology Officer and co-founder of Datature Analytics



**Aw Yuh Shi**  
**Class of 2020**

Air Force Engineer at Republic of Singapore Air Force

## 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:      | 1-6             |
| Biology                                 |                 |
| Biotechnology                           |                 |
| Chemistry                               |                 |
| Computing/Computer Studies              |                 |
| Design & Technology                     |                 |
| Electronics/Fundamentals of Electronics |                 |
| Physics                                 |                 |
| Science (Chemistry, Biology)            |                 |
| Science (Physics, Biology)              |                 |
| Science (Physics, Chemistry)            |                 |

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](http://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 Aerospace Engineering, log on to [www.np.edu.sg/aeg](http://www.np.edu.sg/aeg)



Get latest  
updates on  
course



# N60

## Diploma in Biomedical Engineering

- The first poly diploma that integrates **engineering with life sciences**, with a focus on **emerging sectors such as healthcare cybersecurity**
- **Design and test smart devices** for the fast-growing MedTech field, including telehealth solutions, and prosthetic & orthotic devices
- Get future-ready by acquiring transferable skills in niche engineering fields by specialising in **AI for Engineers, Operational Technology Cybersecurity or Space Technology** **New**
- Gain real-world industry experience through **immersion programmes** with leading MedTech companies and healthcare institutions
- Accelerate your learning with the exclusive **University Pathway Programmes with NUS or SUTD!**

### WHAT THE COURSE IS ABOUT

Fascinated by how engineering and biology can benefit society? Do you wish to develop innovative solutions that advance the work of medical professionals? If this sounds like you, then the Diploma in Biomedical Engineering (BME) is perfect for you.

The fast-growing MedTech field is responsible for the design and innovation 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 such as the pacemaker and dialysis machine. It also includes the development of prosthetic and orthotic devices that support patients in their movement or recovery, improving patient care through technological advancements.

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 more efficient and effective 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 emerging areas such as healthcare Artificial Intelligence (AI) and Internet of Medical Things (IoMT).

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 as well as emerging technologies which are increasingly adopted for clinical applications.

### Cross-Disciplinary Specialisations that Pack a Punch! **New**

To get you future-ready for the dynamic engineering landscape, SOE's brand-new specialisations will give you a distinct edge.

#### • AI for Engineers

Develop deep, domain-specific AI expertise by gaining skills in machine learning, neural networks and deep learning.

#### • Operational Technology Cybersecurity

Acquire cybersecurity competencies to keep industrial operations and critical infrastructure like transport and healthcare secure.

#### • Space Technology

Gain frontier skills in space tech! Learn about satellite design and systems engineering to meet the increasing demand across aerospace and smart infrastructure sectors.

### Industry-relevant Learning

To deepen your skills and gain industry experience, you can choose a six-month internship or take on a Final-Year Project sponsored by top multinational companies, leading MedTech organisations, innovative local start-ups, and established healthcare institutions such as Equip Medical, Meiban Medical, and the National University Health System.

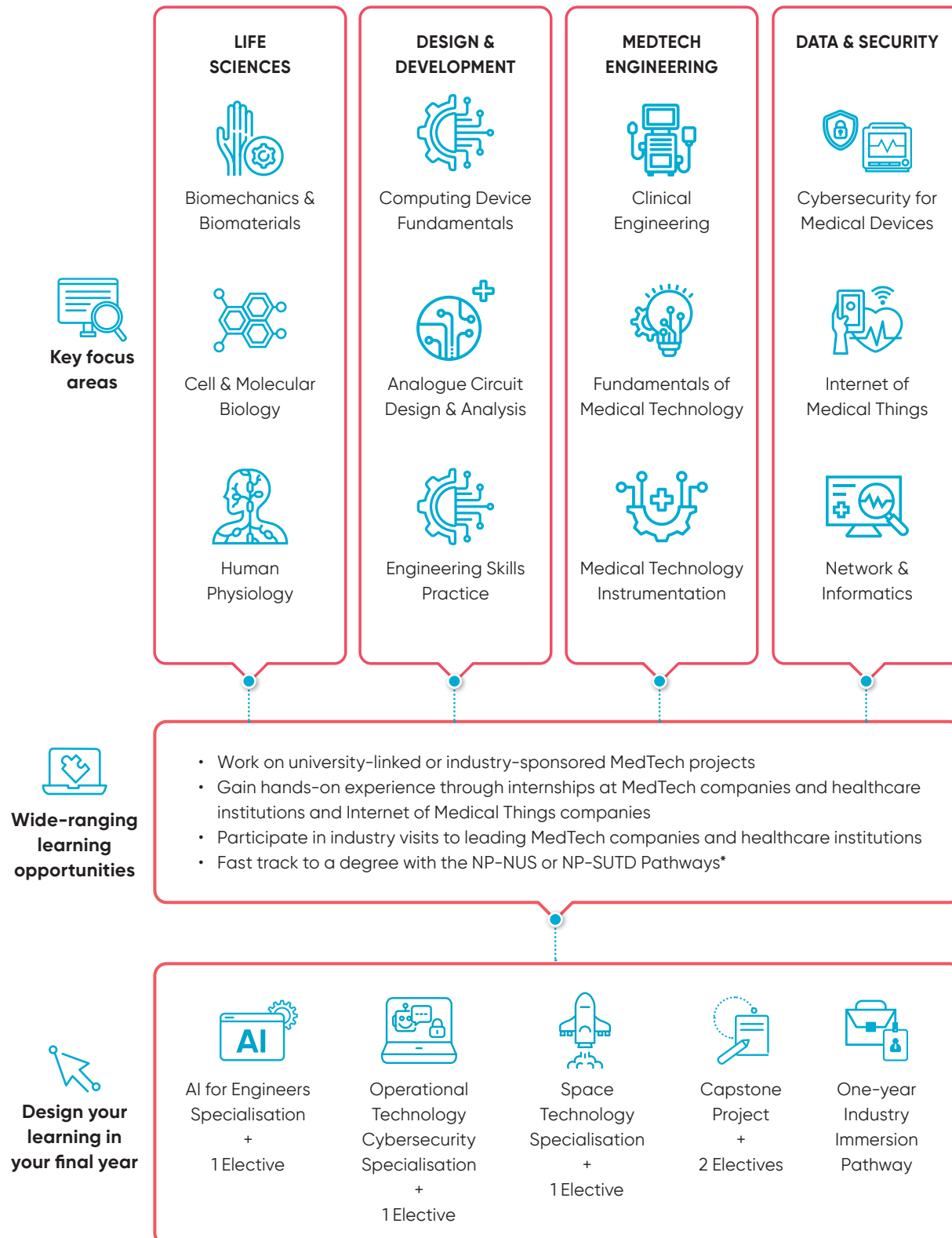
### Industry Immersion Pathway

For more extensive industry exposure, consider the one-year Industry Immersion Pathway. Whether you choose a year-long internship or a project, you will have the opportunity to deepen your industry knowledge, build stronger professional networks, and gain valuable experience for more further study and career options.

### University Pathway Programme

Get a head start on your university studies with the University Pathway Programmes at NUS or SUTD! Both pathways let you read university modules and earn credits toward your future degree at either of these prestigious universities while studying at NP.

## OVERVIEW OF YOUR BME JOURNEY



\*For selected students only

## WHAT YOU WILL LEARN

### YEAR 1

- Computing Device Fundamentals
- Electrical Engineering Fundamentals
- Career & Engineering Professional Preparation
- Engineering Mathematics 1
- Engineering Mathematics 2
- Fundamentals of Medical Technology
- Human Physiology
- Mechanical Engineering Fundamentals
- Programming
- Confident Communication: Find Your Voice (VOICE)^
- Innovation Made Possible^
- Health & Wellness^
- English Language Express\*\*

### YEAR 2

- Analogue Circuit Design & Analysis
- Biomechanics & Biomaterials
- Cell & Molecular Biology
- Clinical Engineering
- Cybersecurity Essentials
- Engineering & Sustainability
- Engineering Skills Practice
- Medical Technology Instrumentation
- Network & Informatics
- World Issues: A Singapore Perspective^

### YEAR 3

- Final-year Project OR Six-month Internship
- Project ID: Connecting the Dots^

#### Electives

- Process & Optimisation
- Medical Data Analytics
- Internet of Medical Things

#### AI For Engineers Specialisation

- Fundamentals of Machine Learning
- Fundamentals of Neural Networks and Deep Learning
- Integrated Projects in Machine Learning
- + 1 Elective Module

#### Operational Technology Cybersecurity Specialisation

- Industrial Automation
- Fundamentals of OT Cybersecurity
- Cyber Governance, Risk & Compliance
- + 1 Elective Module

#### Space Technology Specialisation

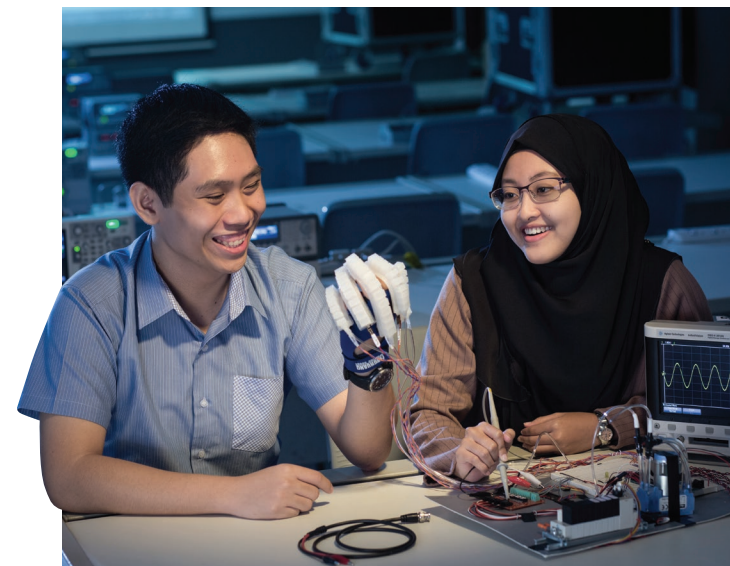
- Satellite Systems Design and Engineering
- Capstone Project: CapSatellite
- + 1 Elective Module

#### Capstone Project

- Capstone Project + 2 Elective Modules

#### Industry Immersion Pathway

- One-year Internship (Local/ Overseas) OR One-year Project



^ 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)



**Evan Chew**  
**Class of 2025**

Awarded the NTU Dean's Award and will be pursuing NTU's Renaissance Engineering programme

## 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 roles:

- Assistant Hospital Engineer
- Biomedical Engineering Specialist
- 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 Ziehm Imaging

## 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:      | 1-6             |
| Biology                                 |                 |
| Biotechnology                           |                 |
| Chemistry                               |                 |
| Computing/Computer Studies              |                 |
| Design & Technology                     |                 |
| Electronics/Fundamentals of Electronics |                 |
| Physics                                 |                 |
| Science (Chemistry, Biology)            |                 |
| Science (Physics, Biology)              |                 |
| Science (Physics, Chemistry)            |                 |

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](http://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](http://www.np.edu.sg/bme)



Get latest updates on course

# N43

## Diploma in Electrical Engineering

- ▶ The only dedicated electrical engineering diploma in Singapore with an **emphasis on sustainability**
- ▶ Strong focus on growth areas in **electrification, decarbonisation, and digitalisation** to unlock exciting opportunities in the **green energy economy!**
- ▶ Choose from **multiple pathways** to meet your unique aspiration
- ▶ Unlock new opportunities for your career and further studies with a **Second Major in Business** and new **Cross-Disciplinary Specialisations** in emerging fields

## WHAT THE COURSE IS ABOUT

As Singapore progresses towards a sustainable future under the SG Green Plan 2030, the Diploma in Electrical Engineering (EE) equips you with the expertise to transform the energy landscape.

Focusing on electrification, digitalisation, and decarbonisation, this course prepares you for the demands of a low-carbon economy. Through a future-ready curriculum, you'll gain the skills to drive sustainable energy solutions and contribute to Singapore's green transition.

### Develop a Strong Foundation

Build a strong foundation in designing and operating electrical systems, from sustainable technologies like solar energy and energy storage to the electrification of homes, transport, and industries. You will also explore the digital transformation of the energy sector, leveraging smart grids, data analytics, and AI to optimise energy use and enhance system efficiency.

### 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.



## 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 IoT-enabled smart energy management technology centre synergy.lab, 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.

### Own Your Learning

You can personalise your learning journey with these pathways:

#### • Smart Energy System Specialisation

Drive digital transformation of the energy sector through advanced sensors, IoT devices, and AI to implement smart energy management.

#### • Sustainable Power Engineering Specialisation

Dive into electrical distribution and utility systems while exploring sustainable energy technologies. Explore clean energy solutions such as solar photovoltaic systems, and develop the skills to design, integrate, and manage these systems effectively.

#### • Cross-Disciplinary Specialisations **New**

Get future-ready by acquiring transferable skills in niche engineering fields by specialising in **AI for Engineers, Operational Technology Cybersecurity or Space Technology**. Refer to Page 5 for more information.

#### • Elective Modules Option

Select four electives to explore emerging technological trends and concepts. This option enhances your career resilience and keeps you competitive as Singapore's energy landscape evolves.

#### • Capstone Project Option

Apply your knowledge to tackle real-world challenges while deepening your technical expertise.

#### • Industry Immersion Pathway

Gain real-world experience, expand your professional network, and build skills for your future with the Industry Immersion Pathway, which offers a choice between a one-year internship or project.

#### • Double Major\*

Get an extra edge by pursuing a Second Major in Business. This dual qualification will unlock new opportunities for your career and further studies.

\*For selected students only

## OVERVIEW OF YOUR EE JOURNEY

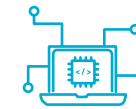


Key focus areas



### Electrification & Power Systems

- Electrical Installation Design
- Electric Vehicles & Charging Technologies
- Power System Design & Operation



### Decarbonisation & Clean Energy Systems

- Solar Photovoltaic System
- Sustainable Energy Technologies



### Digitalisation & Smart Systems

- Data Analysis & Visualisation
- IoT System & Applications
- LabVIEW Application
- PLC & System Integration



Choose from 5 pathways

### Diploma Specialisations

- Smart Energy System Specialisation
- Sustainable Power Engineering Specialisation

OR

### Cross-Disciplinary Specialisations

- AI for Engineers
- Operational Technology (OT) Cybersecurity
- Space Technology



Elective Modules Option



Capstone Project Option



Industry Immersion Pathway



Second Major in Business\*



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.

\*For selected students only

## WHAT YOU WILL LEARN

### YEAR 1

- AC Circuits
- Analogue Electronics
- Digital Fundamentals
- Electrical Engineering Fundamentals
- Engineering Mathematics 1 & 2
- Engineering Practical Skills
- Mechanical Engineering Fundamentals
- Programming
- Career & Engineering Professional Preparation
- Confident Communication: Find Your Voice (VOICE)<sup>^</sup>
- Innovation Made Possible<sup>^</sup>
- Health & Wellness<sup>^</sup>
- English Language Express<sup>\*\*</sup>

### YEAR 2

- Computer-Aided Design\*
- Data Analysis & Visualisation\*
- Electric Circuit Analysis
- Electrical Installation Design
- Electrical Machines
- Engineering & Sustainability
- LabVIEW Application\*
- Microcontroller & System
- Power Electronics
- Power Systems Design & Operation
- PLC & System Integration
- World Issues: A Singapore Perspective<sup>^</sup>

#### Second Major in Business

- Economics
- Finance & Accounting for Business
- Marketing
- Global Business

### YEAR 3

- Project ID: Connecting the Dots<sup>^</sup>
- Six-month Internship OR Final-year Project

#### Smart Energy System Specialisation

- Energy Management & Studies
- IoT System & Applications
- Solar Photovoltaic System
- Smart Grid Technologies

#### Sustainable Power Engineering Specialisation

- Solar Photovoltaic System
- Sustainable Energy Technologies
- System Modelling & Control
- Electric Vehicle & Charging Technologies

#### AI for Engineers Specialisation

- Fundamentals of Machine Learning
- Fundamentals of Neural Networks and Deep Learning
- Integrated Projects in Machine Learning

#### Operational Technology Cybersecurity Specialisation

- Cyber Governance, Risk & Compliance
- Fundamentals of OT Cybersecurity
- Industrial Automation

#### Space Technology Specialisation

- Capstone Project: CanSatellite
- Satellite Systems Design and Engineering

#### Elective Module Option Choose any 4 electives:

- Electric Vehicle & Charging Technologies
- Energy Management & Studies
- IoT System & Applications
- Smart Grid Technologies
- Solar Photovoltaic System
- Sustainable Energy Technologies
- System Modelling & Control

#### Capstone Project Option

- Capstone Project
- IoT System & Applications
- System Modelling & Control

#### Industry Immersion Pathway

- One-year Internship (Local/Overseas) OR One-year Project

#### Second Major in Business

- Corporate Finance
- Develop a Business
- Foundations of Law
- Integrated Marketing Communication
- People & Culture

<sup>^</sup> 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.

<sup>\*\*</sup> For selected students only

\* Not applicable to students taking Second Major in Business

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.



**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



**Jasmine Teo**  
**Class of 2025**

Pursuing a degree in Electrical Engineering at NUS

## CAREER

With the Singapore Green Plan 2030, electrical engineers are increasingly in demand across sustainability- related sectors such as energy and power, the built environment, and transport. With a Second Major in Business, you will be equipped to take on expanded career roles, such as engineering project financing.

You can look forward to pursuing rewarding careers in these job roles:

- Assistant Engineer (Power, Project Development, Commissioning, Operation and Maintenance)
- Solar PV Project Development Supervisor
- Technical Officer (Power Distribution Systems, Engineering & Maintenance (Solar PV & Energy Storage Systems)
- Energy Retail Executive
- Project Financing Executive



**Jed Ong**  
**Class of 2020**

Technical Support Engineer at National Instruments



**Loh Jia Wen**  
**Class of 2022**

Electrical Engineer at PSA Global

## 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:      | 1-6             |
| Biology                                 |                 |
| Biotechnology                           |                 |
| Chemistry                               |                 |
| Computing/Computer Studies              |                 |
| Design & Technology                     |                 |
| Electronics/Fundamentals of Electronics |                 |
| Physics                                 |                 |
| Science (Chemistry, Biology)            |                 |
| Science (Physics, Biology)              |                 |
| Science (Physics, Chemistry)            |                 |

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



Get latest  
updates on  
course

# N44

## Diploma in Electronic & Computer Engineering

- ▶ One of the **most established** electronic and computer engineering diplomas in Singapore
- ▶ **Broad-based curriculum** with strong foundation in electronics, software programming, communication technologies and in-demand fields such as Internet of Things (IoT), Data Analytics, Cloud Computing, Artificial Intelligence (AI) & Machine Learning
- ▶ Choose one of four specialisations to hone your skills – **Operational Technology Cybersecurity** New, **Space Technology** New, **Artificial Intelligence of Things (AIoT)** or **Microelectronics**
- ▶ Unlock new opportunities for your career and further studies with a **Second Major in Business**

### WHAT THE COURSE IS ABOUT

Who can live without electronics and computers today? 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 electronic circuit & system design, software programming and communication technologies.

#### 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.

#### Double Major\*

Get an extra edge by pursuing a Second Major in Business. This dual qualification will unlock new opportunities for your career and further studies.

#### Industry-relevant Learning

Get career ready with our industry-driven curriculum, co-developed with key partners such as Amazon Web Services, CISCO Systems, National Instruments and United Microelectronics Corporation. 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, or an industry-sponsored final year project. Plus, undertake local or overseas study trips to widen your exposure to the exciting world of engineering!

Gain real-world experience, expand your professional network, and build skills for your future with the Industry Immersion Pathway, which offers a choice between a one-year internship or project.

### Specialise in Emerging Areas

In your final year, you can choose from the following:

- **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.
- **Cross-Disciplinary Specialisations**  
Get future-ready by acquiring transferable skills in niche engineering fields by specialising in Operational Technology Cybersecurity or Space Technology. Refer to Page 5 for more information.

\*For selected students only

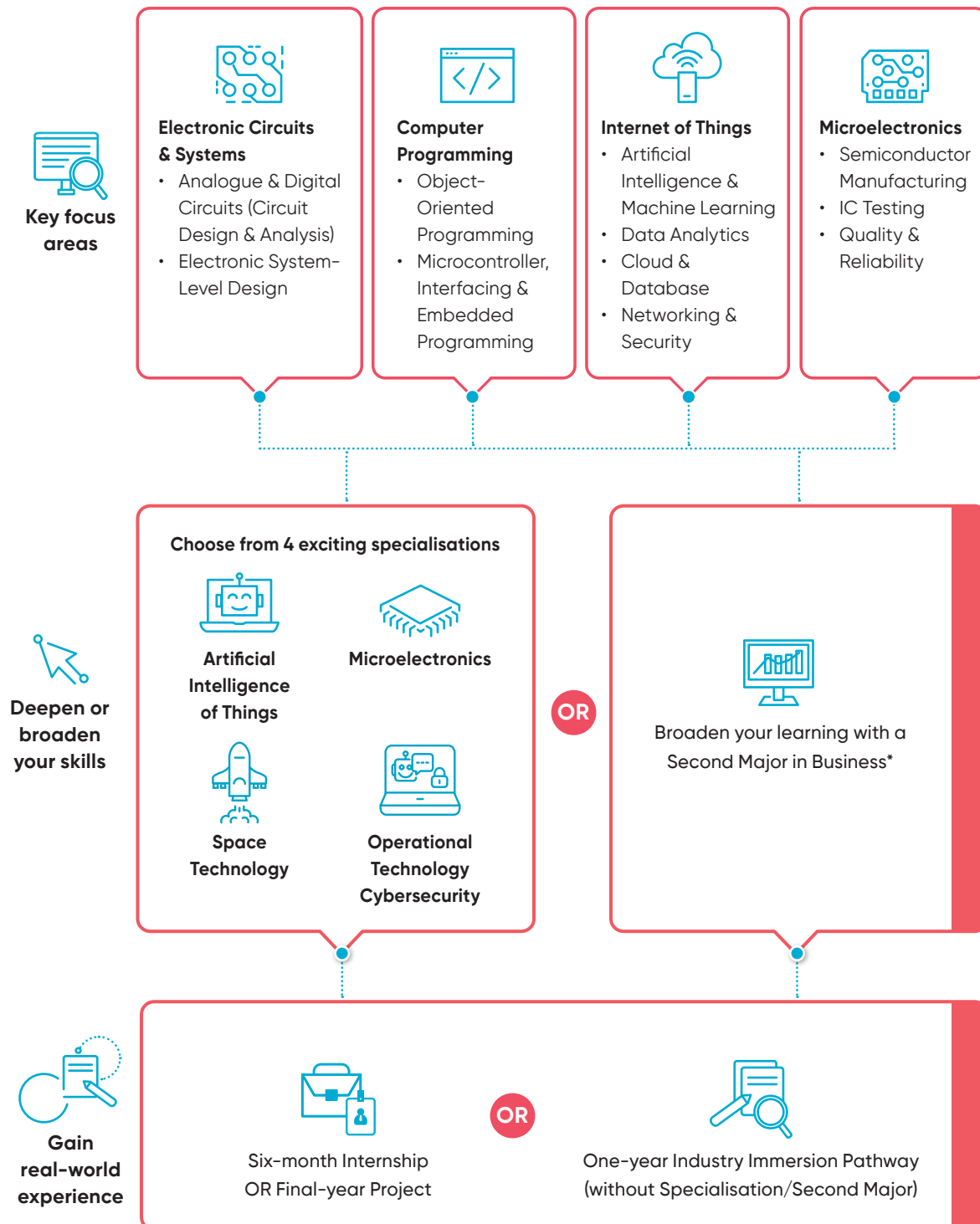


### INNOVATIVE ROBOT SOLUTIONS

Alongside students from Automation & Mechatronic Systems\*, ECE students represented NP at the 29th Tsuyama Robot Contest (Robocon) in Japan. Out of 23 international teams, they received the Best Idea Award for their innovative robot which featured a flywheel shooting mechanism, servocontrolled chain-based rollers, and a tilted roller conveyor for swift puck intake and accurate shots.

\*now renamed Mechatronics & Robotics

## OVERVIEW OF YOUR ECE JOURNEY



\*For selected students only

## WHAT YOU WILL LEARN



### YEAR 1

- AC Circuits
- Analogue Electronics
- Digital Fundamentals
- Engineering Mathematics 1 & 2
- Electrical Engineering Fundamentals
- Fundamental Electronic & Electrical Skills
- Mechanical Engineering Fundamentals
- Programming
- Career & Engineering Professional Preparation
- Confident Communication: Find Your Voice (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^

### Second Major in Business

- Economics
- Finance & Accounting for Business
- Marketing
- Global Business

^ 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.

# Not applicable to students pursuing the Industry Immersion Pathway

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

### YEAR 3

- Six-month Internship (Local/ Overseas) OR Final-Year Project#
- Project ID: Connecting the Dots^

### Artificial Intelligence of Things Specialisation

- AI Applications
- Capstone Project
- IoT & Cloud Security
- Machine Learning with Python

### Microelectronics Specialisation

- Capstone Project
- IC Testing, Assembly & Packaging
- Quality & Reliability
- Semiconductor Manufacturing

### Operational Technology Cybersecurity Specialisation

- AI Applications
- Cyber Governance, Risk & Compliance
- Fundamentals of OT Cybersecurity
- Industrial Automation

### Space Technology Specialisation

- AI Applications
- Capstone Project: CanSatellite
- Satellite Systems Design and Engineering

### Industry Immersion Pathway

- One-year Internship OR One-year Project

### Second Major in Business

- Foundations of Law
- Corporate Finance
- Develop a Business
- People & Culture
- Integrated Marketing Communication

## 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**

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



**Chong Fang Qi**  
**Class of 2015**

Software Engineer at Autodesk Asia Pte Ltd



**Justin Ong**  
**Class of 2017**

Embedded systems engineer at Aliena

## 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:      | 1-6             |
| Biology                                 |                 |
| Biotechnology                           |                 |
| Chemistry                               |                 |
| Computing/Computer Studies              |                 |
| Design & Technology                     |                 |
| Electronics/Fundamentals of Electronics |                 |
| Physics                                 |                 |
| Science (Chemistry, Biology)            |                 |
| Science (Physics, Biology)              |                 |
| Science (Physics, Chemistry)            |                 |

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



Get latest updates on course

# N41

## Mechanical Engineering

- ▶ 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
- ▶ Explore a **Cross-Disciplinary Specialisation** <sup>New</sup> or deepen your learning by specialising in **Automation Design Engineering** or **Mobility Design Engineering**

## 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) giving you a head start in 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, choose from the following options:

- **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 Drives System, Electrical Technology System, and Mobility System Design & Integration, you will develop electro-mechanical mobility skills that are in high demand within the mobility technology sector.

- **Cross-Disciplinary Specialisations**  
Get future-ready by acquiring transferable skills in niche engineering fields by specialising in **AI for Engineers, Operational Technology Cybersecurity or Space Technology**. Refer to Page 5 for more information.

### 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, and SMC Corporation.

You will also work on a Final-Year Project to design and develop a prototype with practical, real-world applications.

To complete your learning journey, choose between a six-month internship with leading organisations such as ST Engineering, Micron Technology, and TÜV SÜD PSB, or the Industry Immersion Pathway. This pathway offers the option of a one-year internship or a one-year project, giving you the chance to build valuable skills and industry knowledge.



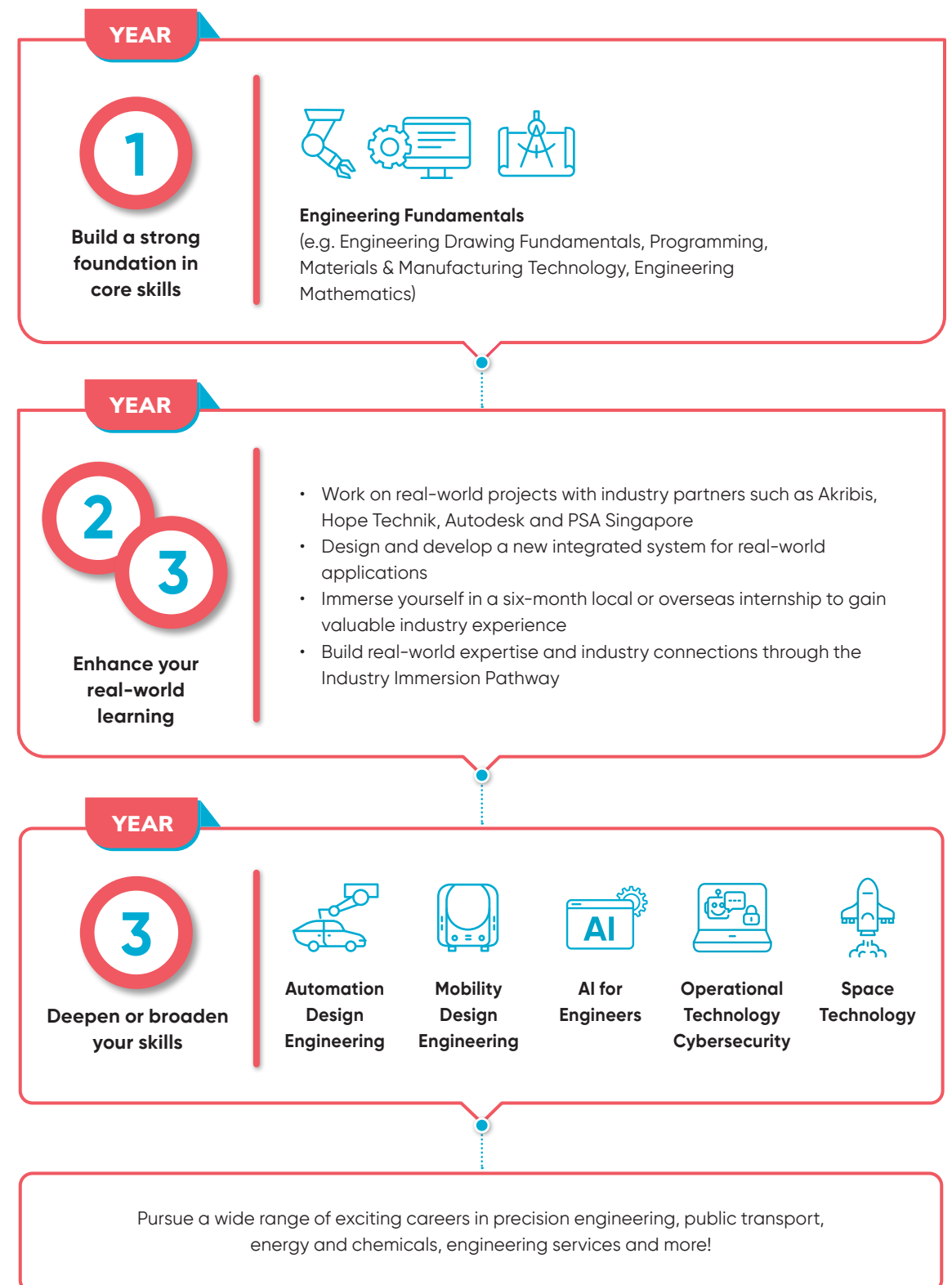
### PASSION FOR CARS

"I was fortunate enough to work on a group-based Final-Year Project that focused on automotive technologies and motorsport. The project gave us the opportunity to build energy-efficient cars and represent NP to compete at the 2019 Shell Eco-Marathon Asia competition where we came in second place! This success inspired me to continue my journey in Mechanical Engineering at NTU!"

**Justin Wong**  
Class of 2019

Justin (far right) received a Master of Science in Race Car Aerodynamics from the University of Southampton. He is currently a junior aerodynamicist with the Visa Cash App Formula One Team.

## OVERVIEW OF YOUR ME JOURNEY



## WHAT YOU WILL LEARN

### YEAR 1

- Career & Engineering Professional Preparation
- Engineering Drawing Fundamentals
- Engineering Mathematics 1 & 2
- Electrical Engineering Fundamentals
- Materials & Manufacturing Technology
- Mechanical Engineering Fundamentals
- Programming
- Thermofluids
- Strength of Materials
- Confident Communication: Find Your Voice (VOICE)<sup>^</sup>
- Innovation Made Possible<sup>^</sup>
- Health & Wellness<sup>^</sup>
- English Language Express<sup>\*\*</sup>

### YEAR 2

- Advanced Materials & Manufacturing Technologies
- Applied Mechanics
- Applied Thermofluids
- Computer-Aided Design & Analysis
- Engineering & Sustainability
- Engineering System Design
- Industrial Automation
- Project Management
- Mechanics of Machines & Materials
- Quality Systems & Analytics
- World Issues: A Singapore Perspective<sup>^</sup>

### YEAR 3

- Capstone Project<sup>^</sup>
- Six-month Internship (Local/ Overseas) OR Final Year Project
- Project ID: Connecting the Dots<sup>^</sup>

#### 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

#### AI For Engineers Specialisation

- Fundamentals of Machine Learning
- Fundamentals of Neural Networks and Deep Learning
- Integrated Projects in Machine Learning
- + 1 Elective Module

#### Operational Technology Cybersecurity Specialisation

- Advanced Automation System
- Fundamentals of OT Cybersecurity
- Cyber Governance, Risk & Compliance
- + 1 Elective Module

#### Space Technology Specialisation

- Satellite Systems Design and Engineering
- Capstone Project: CanSatellite
- + 1 Elective Module

#### Electives

- Mechanical Drives Systems
- Design for Manufacturing & Assembly

#### Industry Immersion Pathway

- One-year Internship OR One-year Project



<sup>^</sup> 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.

<sup>\*\*</sup> For selected students only.

<sup>^</sup>Applicable to students specialising in Automation Design Engineering and Mobility Design Engineering 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

### United Kingdom

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



**Cheng Shi Hui**  
**Class of 2020**

Pursuing a Masters in Biomaterials

## 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
- Quality Assurance Engineer
- Sales Engineer

Kick-start your military career with the SAF Land Systems through the MINDEF/SAF Work-Learn Scheme! Enlist one year earlier than your peers and have your SAF military training and service count towards the fulfilment of your final-year internship requirements.



**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:      | 1-6             |
| Biology                                 |                 |
| Biotechnology                           |                 |
| Chemistry                               |                 |
| Computing/Computer Studies              |                 |
| Design & Technology                     |                 |
| Electronics/Fundamentals of Electronics |                 |
| Physics                                 |                 |
| Science (Chemistry, Biology)            |                 |
| Science (Physics, Biology)              |                 |
| Science (Physics, Chemistry)            |                 |

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](http://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, 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](http://www.np.edu.sg/me)



Get latest  
updates on  
course



# N50

## Diploma in Mechatronics & Robotics

- 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 in AI and Industrial IoT for exciting career opportunities in **robotics engineering and automation!**
- Explore a **Cross-Disciplinary Specialisation** New or deepen your learning by specialising in **Autonomous Systems** or **Automation & Industrial Cybersecurity**
- Unlock new opportunities for your career and further studies by pursuing a **Second Major in Business**

### 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).

#### Specialise in Emerging Areas

In your final year, you can choose to specialise in one of four 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.

- **Cross-Disciplinary Specialisations**  
Get future-ready by acquiring transferable skills in niche engineering fields by specialising in **AI for Engineers or Space Technology**. Refer to Page 5 for more information.

#### Double Major\*

Get an extra edge by pursuing a Second Major in Business. This dual qualification will unlock new opportunities for your career and further studies.

\*For selected students only

#### Industry-relevant Learning

With many modules co-developed, co-delivered and co-assessed with our industry partners such as Aveva, Fortinet, LKH Precicon, Omron Electronics, Siemens, 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, LKH Precicon, A\*STAR, Siemens and Omron Electronics.

Alternatively, you can opt for the Industry Immersion Pathway and embark on a one-year internship or one-year project to deepen your expertise.

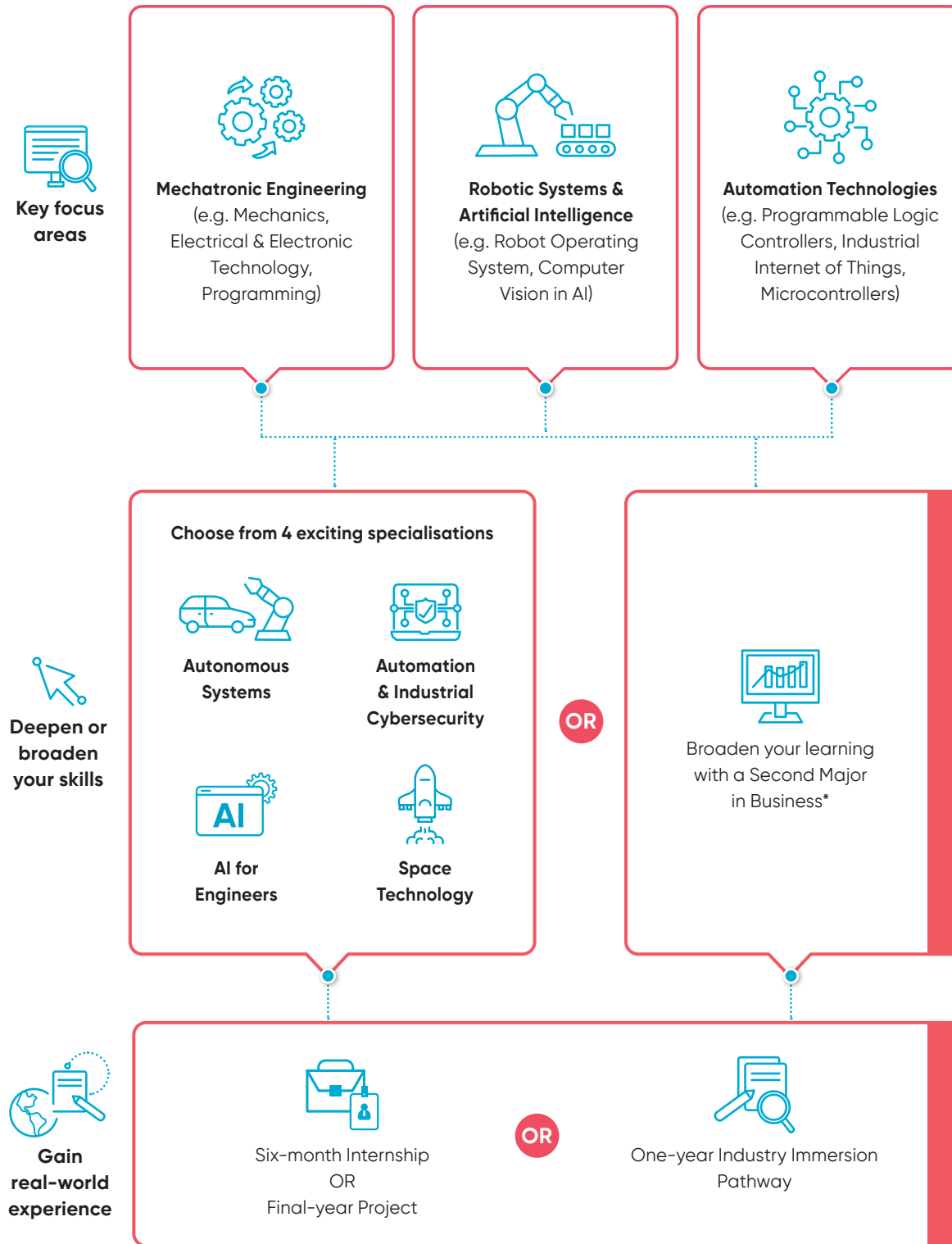
Plus, gain hands-on experience at high-tech mobility solutions provider MooVita, situated right on campus!



### WORLDSKILLS CHAMPIONS

Final-year student Cedric Yau and Alvin Ang (Class of 2025), clinched gold in the mechatronics category at the 2025 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.

## OVERVIEW OF YOUR MR JOURNEY



\*For selected students only

## WHAT YOU WILL LEARN

### YEAR 1

- Electrical & Electronics Technology
- Electrical Engineering Fundamentals
- Engineering Drawing Fundamentals
- Engineering Mathematics 1 & 2
- Materials & Manufacturing Technology
- Mechanical Engineering Fundamentals
- Programming
- Thermofluids
- Career & Engineering Professional Preparation
- Confident Communication: Find Your Voice (VOICE)<sup>^</sup>
- English Language Express<sup>\*\*</sup>
- Health & Wellness<sup>^</sup>
- Innovation Made Possible<sup>^</sup>

### YEAR 2

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

### Second Major in Business

- Economics
- Finance & Accounting for Business
- Marketing
- Global Business

<sup>^</sup> 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.

<sup>\*\*</sup> For selected students only.

<sup>\*</sup> Not applicable to students taking Second Major in Business

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



### YEAR 3

- Final-Year Project OR Six-month Internship (Local/Overseas)
- Systems Modelling & Control<sup>\*</sup>
- Project ID: Connecting the Dots<sup>^</sup>

### Autonomous Systems Specialisation

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

### Automation & Industrial Cybersecurity Specialisation

- Advanced Automation System
- Augmented Reality & Robotics Systems
- Fundamentals of OT Cybersecurity

### AI For Engineers Specialisation

- Fundamentals of Machine Learning
- Fundamentals of Neural Networks and Deep Learning
- Integrated Projects in Machine Learning

### Space Technology Specialisation

- Satellite Systems Design and Engineering
- Capstone Project: CapSatellite

### Industry Immersion Pathway

- One-year Internship OR One-year Project

### Second Major in Business

- Foundations of Law
- Corporate Finance
- Develop a Business
- People & Culture
- Integrated Marketing Communication

## 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



**Tan Xin Yong**  
**Class of 2022**

The NTU Dean's awardee is pursuing a degree in Bachelor of Engineering in Electrical & Electronic Engineering at NTU

## 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:

- Automation Engineer
- Application Engineer
- Equipment Engineer
- Facility Engineer
- Process Engineer
- Product Engineer
- Production Engineer
- Quality Assurance Engineer
- Robotics Engineer
- System Integrator



**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:      | 1-6             |
| Biology                                 |                 |
| Biotechnology                           |                 |
| Chemistry                               |                 |
| Computing/Computer Studies              |                 |
| Design & Technology                     |                 |
| Electronics/Fundamentals of Electronics |                 |
| Physics                                 |                 |
| Science (Chemistry, Biology)            |                 |
| Science (Physics, Biology)              |                 |
| Science (Physics, Chemistry)            |                 |

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### CONTACT US

For the most up-to-date information on NP's Diploma in Mechatronics & Robotics, visit [www.np.edu.sg/mr](http://www.np.edu.sg/mr)



Get latest updates on course

# N42

## Offshore & Sustainable Engineering

- › 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** with a choice of specialisation in **AI for Engineers** or **Operational Technology Cybersecurity** **New**
- › 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' 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.

### Diversify Your Skills

Take on a Cross-Disciplinary Specialisation to get future-ready! You'll acquire transferable skills in niche engineering fields by specialising in **AI for Engineers or Operational Technology Cybersecurity**. Refer to Page 5 for more information.

### 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

Broaden your experience with the Industry Immersion Pathway, which offers a one-year internship for in-depth, hands-on exposure to industry practices. Alternatively, choose a six-month internship with leading companies such as Seatrium Limited, Hanwha Offshore Singapore and PSA Marine. There are also opportunities for you to go on overseas 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



Geometry & Buoyancy



Hydrostatics and Stability



Structure & Resistance

### MARINE ENGINEERING



Marine Propulsion & Systems



Maritime Decarbonisation

### SUSTAINABLE ENGINEERING



Engineering & Sustainability



Offshore Renewables



Capstone Project



Your learning experience

- Learn how to design marine vessels and offshore structures as you hone AI-proficiency
- Embark on a six-month internship or year-long internship at local/overseas marine and offshore companies
- Opportunity to work on multidisciplinary projects in conventional energy, new energy, renewables or decarbonisation solutions
- Build real-world expertise and industry connections through the Industry Immersion Pathway
- Explore either the AI for Engineers or Operational Technology Cybersecurity Cross-Disciplinary Specialisation to gain an extra edge



Career prospects

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

## WHAT YOU WILL LEARN



### YEAR 1

- Engineering Drafting
- Engineering Mathematics 1 & 2
- Electrical Engineering Fundamentals
- Geometry & Buoyancy
- Mechanical Engineering Fundamentals
- Programming
- Thermofluids
- Career & Engineering Professional Preparation
- Health & Wellness<sup>^</sup>
- Innovation Made Possible<sup>^</sup>
- Confident Communication: Find Your Voice (VOICE)<sup>^</sup>
- English Language Express<sup>\*\*</sup>

### 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<sup>^</sup>

### YEAR 3

- Engineering Modelling
- Six-month Internship OR Final-year Project
- Project ID: Connecting the Dots<sup>^</sup>

#### Capstone Project Option

- Capstone Project
- Marine Production Technology

#### AI for Engineers Specialisation

- Fundamentals of Machine Learning
- Fundamentals of Neural Networks and Deep Learning
- Integrated Projects in Machine Learning

#### Operational Technology Cybersecurity Specialisation

- Cyber Governance, Risk & Compliance
- Fundamentals of OT Cybersecurity
- Industrial Automation

#### Industry Immersion Pathway

- One-year Internship OR One-year Project

<sup>^</sup> 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.

<sup>\*\*</sup> 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

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.



**Zenn Lim**  
**Class of 2024**

Pursuing a degree in Naval Architecture and Marine Engineering at SIT

## CAREER

Pursue a career in the design, survey, production, safety, 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 Engineer
- Assistant Quality Control Engineer
- Assistant Project Engineer



**Goh Cai Qi**  
**Class of 2019**

Project Engineer at Hanwha Offshore Singapore



**Chan Shu Fei**  
**Class of 2019**

Engineer at Seatrium Limited



**Muhammad Fadhullah Bin Mohammad Napiah**  
**Class of 2023**

Assistant Piping Supervisor at Hanwha Offshore Singapore

## 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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| Chemistry                               |                 |
| Computing/Computer Studies              |                 |
| Design & Technology                     |                 |
| Electronics/Fundamentals of Electronics |                 |
| Physics                                 |                 |
| Science (Chemistry, Biology)            |                 |
| Science (Physics, Biology)              |                 |
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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](http://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 Operations Manager, Customer Services at Siemens Healthineers.

### HUI ZHE ZHI

**Biomedical Engineering graduate, Class of 2011**



## TAKING AI TO NEW HEIGHTS

Zenas graduated from Cornell University with a Master of Engineering in Information Science, and is currently working as a Senior AI Product Manager at Boston Consulting Group.

### ZENAS LIM

**Engineering Science graduate, Class of 2015**



## MASTER IN ROBOTICS

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

### BENJAMIN TAN

**Automation & Mechatronic Systems\* graduate, Class of 2015**

\*Renamed the Diploma in Mechatronics & Robotics



## PROJECT ENGINEER

Cai Qi graduated from NTU with a degree in mechanical engineering and is currently a project engineer with Hanwha Offshore Singapore.

### GOH CAI QI

**Marine & Offshore Technology graduate\*, Class of 2019**

\*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**



## SHAPING THE FUTURE OF TRANSIT

A recipient of the Singapore-Industry Scholarship, Jin Li graduated from NUS with a degree in Electrical Engineering. She is an electrical specialist with HTX.

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