SP Engineering

AERONAUTICAL ENGINEERING
AEROSPACE ELECTRONICS
BIOENGINEERING
COMMON ENGINEERING PROGRAMME
COMPUTER ENGINEERING
ELECTRICAL & ELECTRONIC ENGINEERING
ENERGY SYSTEMS & MANAGEMENT
ENGINEERING WITH BUSINESS
ENGINEERING SYSTEMS
MECHANICAL ENGINEERING
MECHATRONICS & ROBOTICS

With SP, it’s So Possible
Everything around us is an engineering feat. Smartphones, laptops and transport networks are masterpieces of engineers.

Join Us And Play A Role In Society That Has Never Been More Important Than IT Is Today!

At SP Engineering, you will harness your curious mind and translate ideas into creative solutions to better lives and shape the world around you; be it futuristic energy sources, robots with advanced intelligence, cutting-edge healthcare equipment or even complex aeronautical technology.

You will be imbued with a combination of creativity, leadership and communication skills through the internationally recognised teaching methods in SP. You can seek viable solutions to the latest engineering challenges when you go on overseas or local attachments and internships in notable engineering firms and universities.

When you graduate and join our 35,000 strong engineering alumni, you know that you are at the start of a fulfilling career.

With SP Engineering, it’s so possible.
COURSE CONTENTS

ADVANCED MODULES
You can enrol in Advanced Modules that will help in your university studies. These modules are designed to add greater depth of knowledge in key areas.

Refer to individual course modules for a list of Advanced Modules available.

5 + 1 SEMESTER PROGRAMME
You can opt for this practical-oriented course structure. In this scheme, academic coursework will be completed in 5 semesters instead of 6. The last semester will be dedicated to a multi-disciplinary project or local / overseas internship. Refer to the individual course modules for more information.

SP ENGINEERING SCHOLARSHIP
As a SP Engineering Scholar, you will be selected for research and development attachments as well as local or overseas engineering conferences, so as to keep abreast of the latest developments in your related field of study.
Our state-of-the-art laboratories simulate real working environments. Training facilities include an RSAF A4SU fighter jet, twin-engine general-purpose aircraft and helicopter as well as a full-motion 6DOF (Degree-of-Freedom) flight simulator developed and built in-house.

SP is the first to launch an Aeronautical Engineering diploma course in Singapore. DARE has remained one of the most sought after Engineering diplomas since its inception in 2002. It provides a solid foundation in Mechanical Engineering for subsequent specialisation in aircraft-related modules. Our premier status in education has been forged through sturdy bonds with prestigious aerospace organisations. These include, but is not limited to, the Republic of Singapore Air Force, Singapore Airlines Engineering Company, Singapore Technologies Aerospace, Pratt & Whitney and Bombardier Aerospace Services Singapore.

**Diploma in Aeronautical Engineering**

(DARE – S88)

Entry Requirements

**2017 JAE ELR2B2: 12**

**AGGREGATE TYPE: ELR2B2-C**

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One of the following 3rd relevant subjects:

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

It should be noted that applicants, particularly those who wish to pursue a career as a Licensed Aircraft Engineer (LAE), who have severe colour vision deficiency, uncontrolled epilepsy and hearing deficiency may encounter difficulties meeting the course requirements and expectations. Those with mild deficiencies in these areas are advised to contact Singapore Polytechnic for consultation.

**COURSE HIGHLIGHTS**

This course offers:

- A new AERO HUB to facilitate specialised training on aircraft, R&D on unmanned flying machines, flight simulation, propulsion systems, composite materials and operations of various aircraft systems.
- Alignment to Singapore Airworthiness Requirements (SAR 66).
- The opportunity to sit for the SAR 66 Basic Examinations for licensing Aircraft Maintenance Engineering while still in SP.
- Overseas Industrial Attachment Programmes at aerospace companies or universities.
- A semester-long project with aviation companies.
- A chance to obtain additional certification in Aviation Management.
- An optional 10-week concurrent course in “Commercial Airline Pilot Theory” which can bring you closer to realise your aspiration to become a pilot as well.
The Diploma in Aeronautical Engineering is a three-year full-time programme. All full-time diploma students are required to take two compulsory Education and Career Guidance Modules in SP.

Students will take SP101A: Education and Career Guidance 1 – Personal Development (15 hours) in their first year. In their second or third year, students will take SP201A: Education and Career Guidance 2 – Career Development (30 hours)

All students are required to take one compulsory Sports for Life (SFL) module for one semester in their first year in SP. In their second and third year, students may sign up for SFL module as an elective.

FIRST YEAR
- Basic Mathematics
- Computer-Aided Drafting
- Computer Programming
- Communicating for Personal and Team Effectiveness
- Electrical Engineering Principles
- Electronic Engineering Principles
- Engineering Materials 1
- Engineering Mathematics 1
- General Education 1
- General Education 2
- Introduction to Engineering
- Mechanics 1
- Thermofluids 1

ADVANCED MODULES (OPTIONAL)
- Advanced Mathematics 1
- Advanced Mathematics 2

SECOND YEAR
- Air Legislation & Management
- Aircraft Electrical & Instrument Systems
- Aircraft Maintenance Practices
- Aircraft Power Plants 1
- Aircraft Structures
- Communicating for Project Effectiveness
- Computer-Aided Design (Aeronautical)
- Engineering Materials 2
- Engineering Mathematics 2 (A)
- Engineering Mathematics 2 (B)
- Fundamentals of Flight
- General Education 3
- Mechanics 2
- Social Innovation Project

ADVANCED MODULES (OPTIONAL)
- Advanced Mathematics 2
- Advanced Mathematics 3

THIRD YEAR
- Aerospace Materials
- Aircraft Power Plants 2
- Aircraft Systems
- Avionic Systems
- Communicating for Professional Effectiveness
- Human Factors
- Mechanics 3
- Internship/Project
- Quality Management (Aeronautical)

ADVANCED MODULES (OPTIONAL)
- Aerospace Components Manufacturing
- Aircraft Dynamics & Control
- Finite Element Methods
- Product Design & Development

FURTHER STUDIES
The Singapore Institute of Technology (SIT) and University of Glasgow have accredited the DARE course and allow its graduates to complete the Bachelor of Engineering (Honours) in Aeronautical Engineering and Bachelor of Engineering (Honours) in Aerospace Systems within two years at the Singapore Polytechnic campus. During the three years of your DARE course, you can choose to complete three modules offered by SIM University to qualify for its two-year through-train degree programme in Bachelor of Engineering (Honours) in Aerospace Systems.

Qualified DARE graduates gain direct entry into Aeronautical and Mechanical Engineering degree courses. Local and overseas universities offering advanced standing of up to two years include:
- Nanyang Technological University
- National University of Singapore
- Singapore University of Technology & Design
- Embry-Riddle Aeronautical University, USA
- University of New South Wales, Australia
- Imperial College, UK

CAREER OPTIONS
- Aeronautical Engineering Technologist
- Air Traffic Controller
- Air Transport Operators
- Aircraft Maintenance Engineer
- Assistant Aeronautical Design and System Engineer
- Assistant Aerospace Sales & Marketing Engineer
- Assistant Aerospace Systems Quality Assurance Engineer
- Assistant Engineering Service Engineer
- Assistant Mechanical Engineer
- Assistant Simulator Systems Engineer
- Assistant Technical Service Engineer
- Assistant Unmanned Vehicle System Design Engineer
- Flight Operations Officer
- Planning Executive

LOW HOCK AN
DARE Gold Medallist, Class of 2017

My time at SP gave me the opportunities to learn on real-life planes under the supervision of passionate lecturers.

My incredible internship at Xiamen also opened my eyes to the booming aerospace industry. Looking back, I am glad to have pursued Aeronautical Engineering at SP.
You are excited about Fast Jets, Unmanned Aerial Vehicles, Unconventional Flying Objects or a career in the aerospace industry. The Diploma in Aerospace Electronics (DASE) - the first aerospace diploma in Singapore - is your choice.

The knowledge and project development skills that you acquire from the course will prepare you well to work in a booming aerospace industry and for further studies. If you aspire to be a pilot, with an optional 10-week concurrent course in “Commercial Pilot Theory”, you can bring yourself closer to realising your dream.

DIPLOMA IN
Aerospace Electronics
(DASE – S90)

ENTRY REQUIREMENTS
2017 JAE ELR2B2: 14
AGGREGATE TYPE: ELR2B2-C

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It should be noted that applicants, particularly those who wish to pursue a career as a Licensed Aircraft Engineer (LAE), who have severe colour vision deficiency, uncontrolled epilepsy and hearing deficiency may encounter difficulties meeting the course requirements and expectations. Interested applicants with mild deficiencies in these areas are advised to contact Singapore Polytechnic for consideration.

COURSE HIGHLIGHTS

This course offers:
• A new AERO HUB that houses four aircraft where students can learn to conduct specialised functional and operational tests on aircraft avionic systems. There are also many laboratories and workshops for maintenance training as well as R&D work on unmanned machines.
• A curriculum aligned to the “Singapore Airworthiness Requirements Part 66” (SAR 66) specified by the Civil Aviation Authority of Singapore (CAAS) for licensing of Aircraft Maintenance Engineer.
• An ability-driven course that offers optional certificate programmes such as Aviation Management and Advanced Modules programmes in addition to the DASE course to further prepare you for work and further studies.
• A curriculum that follows the CDIO (Conceive-Design-Implement-Operate) education framework, which is adopted in top engineering universities in the United States, Europe and Australia.
• Training facilities include a full-sized Airbus A320 cockpit to provide realistic maintenance and flight simulation.
• Advanced standing with 1 or 2 years of exemption for further studies in local and overseas universities.
The Diploma in Aerospace Electronics course is a three-year full-time programme.

All full-time diploma students are required to take two compulsory Education and Career Guidance Modules in SP.

Students will take SP101A: Education and Career Guidance 1 – Personal Development (15 hours) in their first year.

In their second or third year, students will take SP201A: Education and Career Guidance 2 – Career Development (30 hours).

All students are required to take one compulsory Sports for Life (SFL) module for one semester in their first year in SP. In their second and third year, students may sign up for SFL module as an elective.

**FIRST YEAR**

- Basic Mathematics
- Computer-Aided Design & Drafting
- Communicating for Personal and Team Effectiveness
- Digital Electronics 1
- Digital Electronics 2
- Engineering Mathematics 1
- Introduction to Engineering 1
- Introduction to Engineering 2
- Principles of Electrical & Electronic Engineering 1
- Principles of Electrical & Electronic Engineering 2
- Network Fundamentals
- Structured Programming
- General Education 1
- General Education 2
- Microcontroller Applications
- Social Innovation Project
- General Education 3

**SECOND YEAR**

- Aeronautical Engineering Science
- Aircraft Electrical Fundamentals
- Aircraft Servomechanisms and Electronics
- Analog Communication Systems
- Circuit Theory & Analysis
- Communicating for Project (Report) Effectiveness
- Communicating for Professional Effectiveness
- Engineering Mathematics 2 (A)
- Engineering Mathematics 2 (B)
- Analog Communication Systems
- Circuit Theory & Analysis
- Communicating for Project (Report) Effectiveness
- Communicating for Professional Effectiveness
- Engineering Mathematics 2 (A)
- Engineering Mathematics 2 (B)

**THIRD YEAR**

- Aircraft Automatic Flight and Electronic Systems
- Aircraft Communication & Navigation Systems
- Aircraft Electrical Systems
- Aircraft Instrument Systems
- Aircraft Radio and Optical Communications
- Human Factors
- 22-week Internship Programme OR 12-week Internship Programme and Final Year Project

**ADVANCED MODULES (OPTIONAL)**

- Advanced Mathematics 1
- Advanced Mathematics 2
- Advanced Mathematics 3
- Further Mathematics
- Physics

As a child, I was interested in engineering and made up my mind to pursue an aerospace-related diploma at Singapore’s first poly. With SP’s state-of-the-art facilities, I am provided with relevant and effective training by dedicated and experienced teaching staff. I am now one step closer to my dream of becoming an engineer.

**TAN YI XUAN**

DASE Gold Medallist, Class of 2017 and recipient of the Singapore University of Technology scholarship.

**CAREER OPTIONS**

- Air Force Engineer (Maintenance)
- Assistant Engineer (Training and Simulation Systems)
- Assistant Engineer (Unmanned Vehicle System Design)
- Assistant Sales Engineer (Aerospace)
- Assistant Systems Integrator (Avionics)
- Flight Operations Officer
- Licensed Aircraft Maintenance Engineer
- Quality Assurance Officer (Aircraft Systems)

**FURTHER STUDIES**

You can gain advanced standing of one or two years of exemption in Aerospace Engineering, Electrical & Electronic Engineering or Computer Engineering degree courses in local and overseas universities.

The Singapore Institute of Technology (SIT) and University of Glasgow have accredited the DASE course for a two years exemption in their “Bachelor of Engineering (Honours) in Aerospace Systems” or “Bachelor of Engineering (Honours) in Aeronautical Engineering” degree programme.

The Singapore University of Social Sciences (SUSS) offers DASE graduates an accelerated part-time training path leading to a Bachelor of Engineering Degree (Honours) in Aerospace Systems.
The Diploma in Bioengineering (DBEN) is a multi-disciplinary course providing students a solid foundation for a promising career in the biomedical sciences and healthcare sectors. The balanced grounding in Mechanical Engineering, Electrical Engineering and Life Sciences is instrumental in developing skills to arrive at viable bioengineering solutions. Our graduates are valuable assets to the rapidly advancing bioengineering industry that constantly churns out innovative equipment and procedures. They collaborate with engineers, doctors and scientists to upgrade health standards and improve the quality of life.

Our graduates are valuable assets for the rapidly advancing biomedical sciences industry that constantly churn out groundbreaking equipment and innovative procedures!
The Diploma in Bioengineering is a three-year full-time programme.

All full-time diploma students are required to take two compulsory Education and Career Guidance Modules in SP.

Students will take SP101A: Education and Career Guidance 1 – Personal Development (15 hours) in their first year.

In their second or third year, students will take SP201A: Education and Career Guidance 2 – Career Development (30 hours).

All students are required to take one compulsory Sports for Life (SFL) module for one semester in their first year in SP. In their second and third year, students may sign up for SFL module as an elective.

FIRST YEAR
- Basic Mathematics
- Computer-Aided Drafting
- Computer Programming
- Communicating for Personal and Team Effectiveness
- Electrical Engineering Principles
- Electronic Engineering Principles
- Engineering Materials 1
- Engineering Mathematics 1
- Introduction to Engineering
- Mechanics 1
- Thermofluids 1
- General Education 1
- General Education 2

ADVANCED MODULES (OPTIONAL)
- Advanced Mathematics 1
- Advanced Mathematics 2

SECOND YEAR
- Assistive Technology & Rehabilitation Engineering
- Biomedical Equipment & Practices
- Biomedical Instrumentation
- Communicating for Project Effectiveness
- Design & Build Medical Device
- Engineering Mathematics 2
- Introductory Anatomy & Physiology
- Laboratory Skills & Techniques
- Mechanics 2
- Thermofluids 2
- Social Innovation Project
- General Education 3

ADVANCED MODULES (OPTIONAL)
- Further Mathematics
- Physics

THIRD YEAR
- Biofluids
- Biomaterials
- Biomechanics
- Biostatistics
- cGMP & Medical Device Validation
- Contamination Controls & Clean Room
- Communicating for Professional Effectiveness
- General Biochemistry
- Internship/Project

ADVANCED MODULES (OPTIONAL)
- Further Mathematics
- Physics

The course has exposed me to a wide range of subjects and biomedical aspects related to the healthcare industry. The dedicated lecturers have also imparted relevant knowledge and taught me specific skills that prepare me well for a career in the Biomedical Engineering industry. With DBEN, I can pursue my dream to be a physiotherapist!

MUHAMMAD SHAFI EQ BIN MUHAMMAD NIZAM
DBEN Silver Medallist, Class of 2015, who will be pursuing a Degree in Physiotherapy under a Healthcare Merit Award Scholarship after his national service.

CAREER OPTIONS
The demand for Bioengineers is on the rise after Singapore became home to Asia’s fastest growing bio-cluster. Bioengineering graduates can look forward to a wide range of career options in:
- Manufacturing, testing and quality control of biomedical products
- Maintenance and commissioning of biomedical equipment and systems
- Design and development of biomedical devices

Prospective employers include medical technology manufacturers, pharmaceutical companies, hospitals, research institutes and even corporations not directly related to Bioengineering.

Some possible jobs include:
- Bioengineering Technology
- Medical Device/Equipment Application Assistant Engineer
- Medical Device Design Assistant Engineer
- Medical Equipment Technician
- Quality Control/Assurance Assistant Engineer
- Regulatory Affairs Specialist

FURTHER STUDIES
Nanyang Technological University has accredited DBEN with 2nd year direct entry to:
- Bioengineering
- Mechanical Engineering
- Materials Engineering

And with module exemptions for Biological Sciences degree.

Examples of local and overseas universities offering either module exemptions or advanced standing up to two years include:
- National University of Singapore
- Sheffield University (UK)
- University of Adelaide (Australia)
- University of Western Australia (Australia)
- Imperial College
- University of Edinburgh

Our DBEN graduates have also been accepted into prestigious universities such as Imperial College and University of Edinburgh.
The Common Engineering Programme has a specially crafted curriculum for those passionate about Engineering but need guidance on the discipline to specialise in.

After the first semester, the student chooses to pursue one of nine established engineering diplomas offered by the School of MAE and EEE:

- S88 Aeronautical Engineering
- S90 Aerospace Electronics
- S58 Bioengineering
- S53 Computer Engineering
- S99 Electrical & Electronic Engineering
- S33 Engineering Systems
- S45 Energy Systems and Management
- S91 Mechanical Engineering
- S73 Mechatronics and Robotics

**ENTRY REQUIREMENTS**

2017 JAE ELR2B2: 15
AGGREGATE TYPE: ELR2B2-C

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**COURSE HIGHLIGHTS**

This programme:

- Offers you a wide range of engineering choices, giving you an insight to what interests you the most.
- Begins with a semester that gives an overview of the skills, competencies and equipment pertinent to various technologies.
- The comprehensive exposure ascertains strengths and interests leading to an informed choice towards the intended career path.
The Common Engineering Programme is a full-time first semester programme and you will progress to one of nine Full-time engineering courses.

All full-time diploma students are required to take two compulsory Education and Career Guidance Modules in SP.

Students will take SP101A: Education and Career Guidance 1 – Personal Development (15 hours) in their first year.

In their second or third year, students will take SP201A: Education and Career Guidance 2 – Career Development (30 hours).

All students are required to take one compulsory Sports for Life (SFL) module for one semester in their first year in SP. In their second and third year, students may sign up for SFL module as an elective.

**FIRST YEAR**

(SEMESTER 1)

- Basic Mathematics
- Computer-Aided Drafting
- Digital Electronics 1
- Introduction to Engineering 1
- Mechanics 1
- Principles of Electrical & Electronic Engineering 1
- General Education 1

(SEMESTER 2)

For DARE / DBEN / DME / DMRO Option
- Communicating for Personal and Team Effectiveness
- Computer Programming
- Engineering Materials 1
- Engineering Mathematics 1
- Introduction to Engineering
- Thermofluids 1

For DASE / DCPE / DES / DEEE / DESM Option
- Communicating for Personal and Team Effectiveness
- Digital Electronics 2
- Engineering Mathematics 1
- Introduction to Engineering 2
- Principles of Electrical & Electronic Engineering 2
- Structured Programming
- General Education 2

For DES students, Thermofluids 1 is replaced by the Engineering Design and Prototyping module.

**SECOND & THIRD YEAR**

Students will take the modules of the engineering course that they have opted for the First Year.

“The experience and exposure enabled me to discover my interests and strength. DCEP has shown me the course that leads to my aspiration after one semester.”

ZHANG RUNZE
DCEP Student, Class of 2014

**CAREER OPTIONS**

To be streamed to one of the engineering courses listed after one semester in SP.

**FURTHER STUDIES**

Depending on your specialisation, you can continue to pursue an engineering degree programme at local or foreign universities.
Computer Engineering is a discipline about the hardware and software aspects of computer science. Computers are unarguably at the heart of any modern, high-tech systems, be it “Smart City”, fighter planes, medical instruments, automobiles, public transportation systems, or weapon systems. Devices and systems are becoming smarter because of computers.

The DCPE course aims to equip you with a solid foundation in computer networking, hardware and software engineering. You will be trained in Electronic Engineering, Computer Hardware - Software Integration, Cloud Computing, Computer Programming and Mathematics, empowering you to meet the challenges of the digital world.

**DIPLOMA IN**

**Computer Engineering**

**(DCPE – S53)**

**ENTRY REQUIREMENTS**

2017 JAE ELR2B2: 17

**AGGREGATE TYPE: ELR2B2-C**

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**COURSE HIGHLIGHTS**

This course offers:

- 40 SingTel Engineering Cadet Scholarships for DCPE students, covering tuition fees, monthly allowance and laptop allowance during Year two and three of the course.
- A wide variety of specialisation options in Computer Applications, Cyber Security, Cloud Computing, Smart City Technologies (Internet of Things and Data Analytics) and Infocomm Technologies.
- Alignment with industrial certifications such as CCNA, RHCSA, CompTIA Cloud Essentials, CCNA Security / CompTIA Security+ to enhance your career prospects.
- An edge in the Cloud Computing technology, via hands-on experiential learning opportunities in our Cloud Computing Centre (the only one of its kind in Singapore).
- Generous credit exemptions from local and overseas universities for Computer Science / Engineering, Infocomm Engineering, and Electronic Engineering degree courses.
- Semester-long internship opportunities at reputable companies for exposure to various aspects of computing, networking and research.
- The opportunity to develop your full potential through our Engineering Academy programme.
The Diploma in Computer Engineering is a three-year full-time programme. All full-time diploma students are required to take two compulsory Education and Career Guidance Modules in SP.

Students will take SP201A: Education and Career Guidance 1 – Personal Development (15 hours) in their first year.

In their second or third year, students will take SP201A: Education and Career Guidance 2 – Career Development (30 hours).

All students are required to take one compulsory Sports for Life (SFL) module for one semester in their first year in SP. In their second and third year, students may sign up for SFL module as an elective.

FIRST YEAR

- Basic Mathematics
- Communicating for Professional Effectiveness
- Computer-Aided Design & Drafting
- Digital Electronics 1
- Digital Electronics 2
- Engineering Mathematics 1
- Introduction to Engineering 1
- Introduction to Engineering 2
- Network Fundamentals
- Principles of Electrical & Electronic Engineering 1
- Principles of Electrical & Electronic Engineering 2
- Structured Programming
- General Education 1
- General Education 2

SECOND YEAR (CORE MODULES)

- Server Management
- Communicating for Project (Report) Effectiveness

YEAR-2 TECHNICAL PATHS

(choose any 1 path from the following):

- COMPUTER ENGINEERING & SOFTWARE (‘CEP’ PATH)
  - Microcontroller Applications
  - Computer Interfacing
  - Data Structures & Algorithms
  - Client-Server Applications Development
  - Mobile Apps Development

- COMPUTER NETWORKING & SECURITY (‘CNS’ PATH)
  - Computer Networking
  - LAN Switching & Wireless
  - TCP / IP
  - Wide Area Networks
  - Network Vulnerabilities & Security Tools

THIRD YEAR (CORE MODULE)

- 22-week Internship OR 12-week Internship + Final Year Project
- One technical module (third-year option dependent) from below:
  - Machine Learning & Artificial Intelligence
  - Network Management
  - Object Oriented Programming
  - Operating Systems

(choose one option from the following, according to year-2 technical path):

- COMPUTER APPLICATIONS
  - Advanced Microcontroller Technology
  - Embedded Computer Systems
  - Microprocessor Systems & Programming
  - Object Oriented Programming

SMART CITY TECHNOLOGIES
(available to CNS path only)

- Smart City Systems Design
- Data Analytics
- Wireless Technology Applications
- Internet of Things Security

COMPUTER NETWORKING
(available to CNS path only)

- Computer Networking
- LAN Switching & Wireless
- TCP / IP
- Wide Area Networks

CLOUD SYSTEMS
(available to both CNS and CES paths)

- Cloud Computing Services
- Data Centre Management
- System Virtualization
- Operating Systems

CYBER SECURITY
(available to CNS path only)

- Internet Security
- Network Analysis & Forensics
- Firewall Technologies
- Network Security Systems

INFOCOMM TECHNOLOGIES
(available to CNS path only)

- Broadband Communications
- IP Multimedia Services
- Mobile Communications
- Network Management

NETWORK SYSTEM ADMINISTRATION
(available to CNS path only)

- Network Management
- System Virtualization
- Data Centre Management
- Cloud Computing Services

FURTHER STUDIES

There are plenty of degree programmes that DCPE graduates may apply for. You can gain direct entry into the second year of local universities to pursue a degree in Electrical & Electronic Engineering and/or advance placements in Computer Engineering. You will be eligible for advance placements in Computer Science/ Engineering, Network Engineering, Information Systems Engineering and Electrical & Electronic Engineering in universities in Australia, New Zealand and United Kingdom.

CAREER OPTIONS

- Assistant Computer Engineer
- Associate Security Engineer
- Cloud Engineer
- Embedded System Engineer
- IT Support Engineer
- Network Engineer/Administrator
- Software/Mobile Applications Developer

During my internship at the Defence Science Organization (DSO), I did research on machine learning and data mining in the aspect of computer networks and cyber security. This allowed me to understand how technology can help improve many aspects of our livelihood, from defending the nation to solving real world problems in an innovative and exciting way.

BENEDICT LEE WEI ZHENG
DCPE Gold Medallist and Lee Kuan Yew Award winner, Class of 2017
The Diploma in Electrical & Electronic Engineering (DEEE) is an established engineering course with a history of more than 50 years. More than 20,000 students have passed through this course and many of them have successfully emerged as captains in their respective fields. It is a course well-recognised by industries and universities (local & overseas). Our DEEE course will prepare you to be a competent and a much sought after technologist and give you the opportunities to participate in the creation of new and vital technologies which are antidotes to most problems in future.

This broad-based course includes the making of the semiconductor chips for smartphones, handling of cutting-edge healthcare equipment and huge power generation plants. DEEE graduates are in high demand with numerous career opportunities from an extensive scope of industries such as: aerospace, biomedical, automation, telecommunication, electrical energy, microelectronics and more.

This course offers:

• A flexible curriculum with a choice of 7 double-specialisation tracks (Aerospace + Communication, Biomedical + Robotics & Control, Computer + Communication, Microelectronics + Nanoelectronics, Microelectronics + Robotics & Control, Power + Control and Rapid Transit Technology + Communication).
• A 12-week or 22-week enhanced internship programme at reputable companies to deepen your skills and provide you with exposure to real-world projects.
• The option to complete the academic programme in six semesters that includes a 12-week internship & final year project or in five semesters and use the last semester to go for a 22-week internship.
• Generous credit exemptions from local and overseas universities for Electrical and Electronic Engineering degree courses.
• A curriculum that follows the CDIO (Conceive-Design-Implement-Operate) framework, which is used in top universities in the United States, Europe and Australia.

ENTRY REQUIREMENTS

2017 JAE ELR2B2: 18
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The Diploma in Electrical & Electronic Engineering is a three-year full-time programme. All full-time diploma students are required to take two compulsory Education and Career Guidance Modules in SP.

Students will take SP101A: Education and Career Guidance 1 – Personal Development (15 hours) in their first year.

In their second or third year, students will take SP201A: Education and Career Guidance 2 – Career Development (20 hours).

All students are required to take one compulsory Sports for Life (SFL) module for one semester in their first year in SP. In their second and third year, students may sign up for SFL module as an elective.

### FIRST YEAR

- **BASIC MATHEMATICS**
  - Communicating for Personal and Team Effectiveness
  - Computer-Aided Design & Drafting
  - Digital Electronics 1
  - Digital Electronics 2
  - Engineering Mathematics 1
  - Introduction to Engineering 1
  - Introduction to Engineering 2
  - Network Fundamentals
  - Principles of Electrical & Electronic Engineering 1
  - Principles of Electrical & Electronic Engineering 2
  - Structured Programming
  - General Education 1
  - General Education 2

### SECOND YEAR

- **Circuit Theory & Analysis**
- **Communicating for Professional Effectiveness**
- **Computing for Project (Reports) Effectiveness**
- **Engineering Mathematics 2 (A)**
- **Engineering Mathematics 2 (B)**
- **Microcontroller Applications**
- **Social Innovation Project**
- **General Education 3**

### THIRD YEAR

- **22-week Internship Programme or 12-week Internship Programme + Final Year Project**

### TECHNICAL MODULES

- **AEROSPACE ENGINEERING**
  - Aircraft Electrical Fundamentals
  - Aircraft Servomechanisms & Electronics
  - Biomedical Engineering
  - Anatomy & Physiology
  - Biomedical Instrumentation Design & Applications

- **ELECTRICAL ENGINEERING**
  - Electrical Installation Design
  - Programmable Logic Controller Applications
  - Electronic Engineering
  - Analog Communication Systems
  - Data Communication Systems

- **ELECTRONICS & CONTROL**
  - IC Testing
  - Quality & Reliability
  - Water Fabrication
  - MEMS & Microsystems

- **MICROELECTRONICS & ROBOTICS & CONTROL**
  - IC Testing
  - Quality & Reliability
  - Water Fabrication
  - Systems & Control
  - Robotics Technology
  - Power & Control
  - Power Electronics & Driver
  - Power Transmission & Distribution
  - Power System Analysis
  - Systems & Control
  - Sensors & Instrumentation
  - Rapid Transit Technology + COMMUNICATION
  - Rapid Transit Signal Systems
  - Rapid Transit Signalling System
  - Digital Communications
  - Networks & Protocols

- **ADVANCED MODULES (OPTIONAL)**
  - Advanced Mathematics 3
  - Advanced Mathematics 2
  - Advanced Mathematics 1
  - Further Mathematics
  - Physics

### CAREER OPTIONS

Some possible careers include:

- Assistant Electrical Engineer
- Assistant Electronics Engineer
- Assistant Process Engineer
- Assistant Project Engineer
- Assistant Quality Engineer
- Assistant Test Engineer
- Aircraft Maintenance Engineer
- Biomedical Equipment Service Engineer
- Field Service Assistant Engineer
- IT Support Engineer
- Maintenance Assistant Engineer
- Material Planner
- Technical Officer (Control & Instrumentation)
- Technical Officer (Power Distribution System)

Your diploma is recognised by Energy Marketing Authority (EMA) for the application of Electrical Technician License if you want to specialise in Power + Control Engineering.

If you take a specialisation in Aerospace + Communication Engineering, you can have a competitive edge when taking the SAT 60 examinations conducted by the Civil Aviation Authority of Singapore for Licensing of Aircraft Maintenance Engineers.

### FURTHER STUDIES

You can gain direct entry into the second year of local universities to pursue a degree in Electrical & Electronic Engineering Options. You may be granted advanced standing of up to two years when applying for related degree programmes at overseas universities in Australia, New Zealand and United Kingdom.
Energy is the main driver of Singapore’s economy and it is with us everywhere, all the time. Energy systems secure the operation of our daily life gadgets, household appliances, commercial centres, transportation system and water supply system.

With fossil fuels like coal, oil and gas depleting, and the increasing threat of global warming, there is a pressing need to optimise the energy system and manage the supply of energy efficiently.

The Diploma in Energy Systems and Management (DESM) will train you in three energy areas: clean energy, power engineering and, energy efficiency and management.

DESM will give you the knowledge and technical skills to tackle the energy-related challenges of the future, and to ensure the energy sustainability of the Singapore economy.

Energy demand to sustain Singapore’s economic growth is expected to increase over the years, creating high quality jobs.

The DESM course will transform you into a new generation technologist, managing the energy systems in sustainable ways.

**COURSE HIGHLIGHTS**

- Pioneering research in clean energy, as the first polytechnic to set up a solar and wind energy system in Singapore.
- Overseas industrial training programmes in Germany, Australia, Japan, China and Thailand.
- Six-month internship in leading industrial companies.
- Eligibility to apply for the Professional Electrical Licence issued by Energy Market Authority (EMA).
- Greater prospects for further studies; graduates of this course have been awarded with scholarships from EMA, A*STAR, SPRING Singapore, BCA-Industry, Singapore Power, Hitachi Asia, Senoko Energy, NUS, NTU and SUTD.

**ENTRY REQUIREMENTS**

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The Diploma in Energy Systems and management is a three-year full-time programme.

All full-time diploma students are required to take two compulsory Education and Career Guidance Modules in SP.

Students will take SP101A: Education and Career Guidance 1 – Personal Development (15 hours) in their first year.

In their second or third year, students will take SP201A: Education and Career Guidance 2 – Career Development (30 hours).

All students are required to take one compulsory Sports for Life (SFL) module for one semester in their first year in SP. In their second and third year, students may sign up for SFL module as an elective.

FIRST YEAR
- Basic Mathematics
- Communicating for Personal and Team Effectiveness
- Computer-Aided Design & Drafting
- Digital Electronics 1
- Digital Electronics 2
- Engineering Mathematics 1
- Introduction to Engineering 1
- Introduction to Engineering 2
- Principles of Electrical & Electronic Engineering 1
- Principles of Electrical & Electronic Engineering 2
- Network Fundamentals
- Structured Programming
- General Education 1
- General Education 2
- Microcontroller Applications
- Social Innovation Project
- Solar Photovoltaic System Design
- Wind Energy System
- ThermoFluid 1
- General Education 3

SECOND YEAR
- Circuit Theory & Analysis
- Communicating for Project (Report) Effectiveness
- Communicating for Professional Effectiveness
- Electrical Installation Design
- Energy Management & Auditing
- Engineering Mathematics 2 (A)
- Engineering Mathematics 2 (B)
- Microcontroller Applications
- Social Innovation Project
- Solar Photovoltaic System Design
- Wind Energy System
- ThermoFluid 1
- General Education 3

THIRD YEAR
- Integrated Building Energy Management System
- Power Electronics and Drives
- Power System Analysis
- Power Transmission & Distribution
- Refrigeration & Air-Conditioning
- Smart Grid & Energy Storage
- 22-week Internship Programme OR 12-week Internship Programme and Final Year Project
- Microcontroller Applications
- Social Innovation Project
- Solar Photovoltaic System Design
- Wind Energy System
- ThermoFluid 1
- General Education 3

ADVANCED MODULES (OPTIONAL)
- Advanced Mathematics 1
- Advanced Mathematics 2
- Advanced Mathematics 3
- Further Mathematics
- Physics

I used to think that clean energy alone can improve the environment. However my perspective changed when I enrolled in DESM and learnt that energy management is just as crucial.

In DESM, I picked up critical skills and knowledge including the different types of renewable energy sources and how cities are powered through its power transmission and distribution systems. I was even exposed to smart technologies that help us monitor our systems.

I am now well equipped with the knowledge and practical skills needed for me to further my studies as well as my career in this industry.

JOANNA LUM JIA MIN
DESM Gold Medallist, Class of 2017

FURTHER STUDIES
You can pursue a degree in engineering at most local universities including National University of Singapore (NUS); Nanyang Technological University (NTU); Singapore University of Technology & Design (SUTD) and Singapore Institute of Technology (SIT).

You can also pursue an energy-related degree offered by the following prestigious overseas universities:
- University College of London (UCL) (UK); University of Southampton (UK); University of Manchester (UK); University of Edinburgh (UK); Australian National University (Australia), University of New South Wales (Australia), University of Sydney (Australia), Murdoch University (Australia), University of Western Australia, the Munich University of Applied Sciences (Germany) and Swiss Lucerne University of Applied Science and Art.
In this constantly changing world, conducting business without a good understanding of new technologies is a challenge. Similarly, a good engineer should have knowledge and skills in business.

The Diploma in Engineering with Business gives you the best of both worlds and will train you to be a business-savvy engineer. Get ready to be the entrepreneurial engineer.

If you are interested in mathematics, science and technology, but aren’t sure about pursuing a pure engineering course, this is the right choice for you!

In this course, you will acquire knowledge and skills in electrical and mechanical engineering principles and enabling technologies. You will spend a third of your time learning and applying business concepts to engineering products and businesses.

**COURSE HIGHLIGHTS**

This course offers:

- The opportunity to learn from three SP schools – School of Electrical & Electronic Engineering, School of Mechanical and Aeronautical Engineering and SP Business School.
- Integration of engineering and business knowledge with a strong focus on technopreneurship.
- A semester-long internship programme in world-class companies.
- First-hand experience in foreign business and work culture through overseas programmes.
- A proven track record with students admitted to NUS, NTU, SMU, SUTD and SIT.

**ENTRY REQUIREMENTS**

2017 JAE ELR2B2: 14
Aggregate Type: ELR2B2-C

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The Diploma in Engineering with Business is a three-year full-time programme. All full-time diploma students are required to take two compulsory Education and Career Guidance Modules in SP. Students will take SP101A: Education and Career Guidance 1 – Personal Development (15 hours) in their first year. In their second or third year, students will take SP201A: Education and Career Guidance 2 – Career Development (30 hours).

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### Course Modules

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The Diploma in Engineering with Business (DEB) is without a doubt, an innovative course as it provided me with numerous learning opportunities to build and market my own prototype. Under the guidance of experienced lecturers, I was exposed to up-to-date technology which includes 3D printing, laser cutting and marketing intelligence software. DEB has definitely prepared me to be a business savvy engineer!

VINCENT CHIN
DEB Gold Medallist, Class Of 2016, who received the National University of Singapore Merit Scholarship to read Electrical Engineering under the Global Engineering Programme

**FURTHER STUDIES**

You have the flexibility to further your studies in engineering, business or similar inter-disciplinary programmes in both local and overseas universities. You can get advanced standing when you take up engineering or business degree programmes.

**CAREER OPTIONS**

- Assistant Engineer (Product Design/Development)
- Assistant Engineer (Project)
- Business Development Executive
- Customer Relationship Management Executive
- Entrepreneur
- Procurement Executive
- Sales and Marketing Executive
The Diploma in Engineering Systems (DES) course is a multidisciplinary course imparting knowledge and skills in mechanical, electrical, electronic and computer engineering and enables students to conceptualise, design, develop and integrate engineering products and systems. The knowledge and skills acquired through the course will be relevant and aligned with the needs of a Smart Nation.

**Course Highlights**
- The course curriculum develops students to be independent learners having the skills to design and build innovative engineering products and systems.
- A curriculum developed alongside the industry to provide authentic learning and develop relevant skill sets.
- Two final-year specialisations to meet the manpower demands in smart systems and urban transport.
- The course received strong endorsement from renowned companies and organisations such as LTA, SMRT, SBST, PSA etc.
- Hands-on practical engineering experience during the semester-long Internship Programme that is based on industry and/or research collaborations.
- Prestigious scholarships by external organisations (eg. A*STAR Science Award, SMRT Scholarship and etc.) and SP (eg. SPOT and etc.)

**Entry Requirements**

**2017 JAE ELR2B2: 21**

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The Diploma in Engineering Systems is a three-year full-time programme.

All full-time diploma students are required to take two compulsory Education and Career Guidance Modules in SP. Students will take SP101A: Education and Career Guidance 1 – Personal Development (15 hours) in their first year. In their second or third year, students will take SP201A: Education and Career Guidance 2 – Career Development (30 hours).

All students are required to take one compulsory Sports for Life (SFL) module for one semester in their first year in SP. In their second and third year, students may sign up for SFL module as an elective.

FIRST YEAR
- Basic Mathematics
- Communicating for Personal and Team Effectiveness
- Computer Aided Drafting
- Principles of Electrical and Electronic Engineering 1
- Principles of Electrical and Electronic Engineering 2
- Digital Electronics 1
- Engineering Mathematics 1
- Introduction to Engineering 1
- Structured Programming
- Mechanics 1
- Thermofluids 1
- Engineering Design & Prototyping
- General Education 1
- General Education 2

SECOND YEAR
- Analogue Communication Systems
- Engineering Innovation Studio
- Engineering Mathematics 2 (A)
- Social Innovation Project
- Engineering Materials
- Mechanics 2
- Circuit Theory and Analysis
- Engineering Mathematics 2 (B)
- Engineering System Design
- Sensors & Instrumentation
- Thermofluids 2
- General Education 3

THIRD YEAR
SMART SYSTEM OPTION
- Mobile Application Development
- Networks & Protocols
- Wireless Technology Applications
- Smart City Systems Design
- Data Analytics
- Project Management

URBAN TRANSPORTATION SYSTEM OPTION
- Electrical Control System
- Electrical Power System
- In-Vehicle Systems
- Transportation Management
- Urban Transportation Design
- Mechanics of Machine Elements & Dynamics
- Internship

ADVANCED MODULES (OPTIONAL)
- Advanced Mathematics 1
- Advanced Mathematics 2
- Advanced Mathematics 3
- Further Mathematics
- Physics

NOVEN LEE
DES Gold Medallist, Class of 2017

DES combines different disciplines and created an amazing combination that is highly relevant to the industry. The DES modules nurtured my interest in Engineering over time. The course encourages self-exploration, with possibilities of making new discoveries in the world of Engineering. My internship at SICK Product Center Asia Pte Ltd showed me how important and relevant it is in the industry to be multi-disciplined. Completing this course has opened a new world of possibilities for me.

NOVEN LEE
DES Gold Medallist, Class of 2017

SPECIALISATION OPTIONS
SMART SYSTEMS
In this specialisation, you will learn about the use of wireless technologies to collect information for more efficient operation, mobile applications for smarter connectivity, data analytics to process and analyse massive amount of data in making smart decisions and designing a Smart City. In Singapore’s Smart Nation projects, big or small, there is need for people with the skills - Smart Systems will equip you with the necessary.

URBAN TRANSPORTATION SYSTEMS
This specialisation teaches you about the system designs and control technologies of individual Mechanical, Electrical & Electronic systems, which collectively create a complex Urban Transportation system. Urban Transportation will provide excellent authentic learning experiences, which equips the knowledge and skills to meet the increasing demand for skilled people in this sector.

CAREER OPTIONS
- Assistant Application Engineer
- Assistant Product Development Engineer
- Assistant Project Engineer
- Assistant System Engineer
- Assistant Engineer (Automation)
- Assistant Engineer (Application Development)
- Assistant Engineer (System Integration Management)

FURTHER STUDIES
You may further your studies in Engineering with a major in Engineering Product Development or Engineering Systems and Design at the Singapore University of Technology and Design (SUTD) or pursue an Engineering degree at the National University of Singapore (NUS) and Nanyang Technological University (NTU). You may also get advanced standing when you pursue Engineering Programmes in Australia, UK and USA.
This is Singapore’s first Engineering course, offered since 1958, and it has since remained the island’s de facto first-choice Mechanical Engineering diploma course.

We are constantly reinventing to align with international trends and accreditations. You will not only develop a firm foundation in a wide range of Engineering disciplines but also acquire basic skills in Business and Humanities. In your final year, you will be streamed in one of six technology options. Many graduates have built successful careers in Engineering. Some are leading large corporations or have started their own business.

COURSE HIGHLIGHTS

This course offers:
- CDIO (Conceive-Design-Implement-Operate) framework and Design Thinking methodology.
- Internships with reputable organisations and exposure to real-world projects.
- An opportunity to obtain additional certification in:
  - Aviation Management
  - Design Thinking
  - Business

ENTRY REQUIREMENTS

2017 JAE ELR2B2: 16
AGGREGATE TYPE: ELR2B2-C

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The Diploma in Mechanical Engineering is a three-year full-time course with common first-year modules.

All full-time diploma students are required to take two compulsory Education and Career Guidance Modules in SP.

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All students are required to take one compulsory Sports for Life (SFL) module for one semester in their first year in SP. In their second and third year, students may sign up for SFL module as an elective.

FIRST YEAR
• Basic Mathematics
• Communicating for Personal and Team Effectiveness
• Computer-Aided Drafting
• Computer Programming
• Electrical Technology
• Electronics
• Engineering Materials 1
• Engineering Mathematics 1
• Introduction to Engineering
• Mechanics 1
• Thermofluids 1
• General Education 1
• General Education 2

SECOND YEAR
• Communicating for Project Effectiveness
• Computer-Aided Machining
• Design and Build
• Engineering Materials 2
• Engineering Mathematics 2 (A)
• Engineering Mathematics 2 (B)
• Industrial Engineering
• Industrial Automation
• Instrumentation & Control
• Mechanics 2
• Thermofluids 2
• Social Innovation Project
• General Education 3

THIRD YEAR
• Communicating for Professional Effectiveness
• Engineering Thermodynamics
• Fluid Mechanics
• Internship/Project
• Mechanics 3
• Organisational Management
• Quality Engineering & Management
• Workplace Safety & Health Management

PLUS ONE OF THE FOLLOWING TECHNOLOGY OPTIONS:

AEROSPACE TECHNOLOGY
• Aircraft Systems
• Aerospace Materials

ENERGY SYSTEMS
• Refrigeration & Air-Conditioning
• Renewable Energy & Applications

FACILITIES MANAGEMENT
• Facilities Maintenance Engineering & Services
• Renewable Energy & Applications

MACHINE DESIGN
• System Integration
• Tooling Engineering

PRECISION ENGINEERING
• Advanced Machining & Metrology
• Tooling Engineering

PRODUCT REALISATION
• Ergonomics & Universal Design
• Product Design & Development

ADVANCED MODULES (OPTIONAL)
• Aerospace Materials
• Design Communication & Illustration
• Finite Element Methods
• Further Mathematics
• Parts Design
• Plant Maintenance Engineering
• Physics
• Advanced Mathematics 1
• Advanced Mathematics 2
• Advanced Mathematics 3

CHIN GUAN WEI
DME Gold Medallist and Lee Kuan Yew Award winner, Class of 2015 who will be pursuing a Degree in Mechanical Engineering at Nanyang Technological University under the Nanyang Scholarship after his national service.

I had an enriching time in the DME course and never regretted choosing it. Mechanical Engineering is the basis for almost every other engineering fields and the strong foundation I have built here will serve me in good stead.

FURTHER STUDIES
You can gain advanced standing of up to two years in mechanical engineering degree courses at local and overseas universities, such as:

• Nanyang Technological University
• National University of Singapore
• Singapore University of Technology & Design
• Singapore Institute of Technology
• University of Glasgow and Newcastle University
• Imperial College
• University of Manchester
• University of Birmingham
• University of New South Wales
• RMIT University

CAREER OPTIONS
• Assistant Aircraft Maintenance Engineer
• Assistant Automation Engineer
• Assistant Engineering Services Engineer
• Assistant Facility Engineer
• Assistant HVAC (Heating, Ventilation & Air-Conditioning) Engineer
• Assistant Machine & Product Design Engineer
• Assistant Manufacturing Engineer
• Assistant Mechanical Engineer
• Assistant Project Engineer
• Assistant Quality Engineer
• Assistant R&D (Research & Development) Engineer
• Assistant Tooling Engineer

44
SP launched Singapore’s first Mechatronics diploma course in 1991 to meet the niche demand for cross-disciplinary Engineers in precision engineering work. We have since diversified to meet the increasing demand for multi-disciplinary Engineers especially in the emerging fields of Automotive, Nanotechnology and Space. Training has gone beyond the core areas of Mechanical Engineering and Electronics to include a plethora of skills in IT, programming and design.

As a DMRO student, you will work with renowned industry partners during the Internship Programme and participate in high-profile robotics competitions locally and internationally.

**DIPLOMA IN**

**Mechatronics and Robotics**

(DMRO - S73)

**COURSE HIGHLIGHTS**

This course offers:
- The chance to branch out into other fields of Engineering.
- Multi-skills and knowledge that cover Mechanical Engineering, Electronics and Computer Technology.
- Real and relevant first-hand work experience and engaging projects with reputable organisations.
- The opportunity to obtain additional certification in Aviation Management, Business, Digital Media Creation, Design Thinking and also Software Programming & Applications.

**ENTRY REQUIREMENTS**

2017 JAE ELR2B2: 13
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<td>1 - 6</td>
</tr>
<tr>
<td>One of the following 3rd relevant subjects:</td>
<td>1 - 6</td>
</tr>
<tr>
<td>Biology</td>
<td></td>
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<tr>
<td>Biotechnology</td>
<td></td>
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<tr>
<td>Chemistry</td>
<td></td>
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<tr>
<td>Computer Studies</td>
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<tr>
<td>Design &amp; Technology</td>
<td></td>
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<tr>
<td>Fundamentals of Electronics</td>
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<tr>
<td>Physics</td>
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<tr>
<td>Science (Chemistry, Biology)</td>
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<tr>
<td>Science (Physics, Biology)</td>
<td></td>
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<tr>
<td>Science (Physics, Chemistry)</td>
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</tbody>
</table>

As a DMRO student, you will work with renowned industry partners during the Internship Programme and participate in high-profile robotics competitions locally and internationally.
The Diploma in Mechatronics & Robotics is a three-year full-time programme.

All full-time diploma students are required to take two compulsory Education and Career Guidance Modules in SP.

Students will take SP101A: Education and Career Guidance 1 – Personal Development (15 hours) in their first year.

In their second or third year, students will take SP201A: Education and Career Guidance 2 – Career Development (30 hours).

All students are required to take one compulsory Sports for Life (SFL) module for one semester in their first year in SP. In their second and third year, students may sign up for SFL module as an elective.

**FIRST YEAR**
- Basic Mathematics
- Computer-Aided Drafting
- Computer Programming
- Electrical Engineering Principles
- Electronic Engineering Principles
- Engineering Materials 1
- Engineering Mathematics 1
- Introduction to Engineering
- Mechanics 1
- Communicating for Personal and Team Effectiveness
- Thermofluids 1
- General Education 1
- General Education 2

**ADVANCED MODULES (OPTIONAL)**
- Advanced Mathematics 1
- Advanced Mathematics 2
- Physics

**SECOND YEAR**
- Computer-Aided Machining
- Communicating for Project Effectiveness
- Design & Fabrication Project
- Electronic Devices
- Engineering Mathematics 2
- Industrial Automation
- Mechanics 2
- Microcontroller Applications
- Thermofluids 2
- Social Innovation Project
- Statistics and Analytics for Engineers
- General Education 3

**THIRD YEAR**
- Circuit Theory
- Communicating for Professional Effectiveness
- Internship/Project
- Mechanics 3
- Programmable Logic Controllers
- Robotic Integration & Programming
- Systems & Control
- Organisational Management
- Workplace Safety & Health Management

**ADVANCED MODULES (OPTIONAL)**
- Further Mathematics

The hands on curriculum of the DMRO course gave me not just excellent engineering fundamentals but also hands on capabilities. DMRO is a unique course that combines traditional engineering disciplines like Mechanical, Electrical, Electronic and Programming.

This allows graduates like myself to be versatile in the ever-changing world of engineering.

My most memorable experience was my Final Year Project where I worked with one of the world’s leading sensor company, SICK AG Pte Ltd.

We designed and fabricated a concept prototype of an indoor autonomous robotic mobility vehicle for airports. This experience helped me to develop my technical abilities like designing and fabricating and soft skills like leadership, team work and communication skills that will help me in my future studies and career.

**CAREER OPTIONS**
- Assistant Automation Engineer
- Assistant Design Engineer
- Assistant Electromechanical Engineer
- Assistant Mechanical Engineer
- Assistant Mechatronics Engineer
- Assistant Robotics Engineer
- Assistant System Development Engineer

**FURTHER STUDIES**
DMRO graduates gain direct entry into the second year of related Engineering degree courses at local and overseas universities such as:
- Nanyang Technological University
- National University of Singapore
- Singapore University of Technology & Design
- Singapore Institute of Technology:
  - Newcastle University
  - Technische Universität München
  - University of Glasgow
  - DigiPen Institute of Technology

**Course MODULES**

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- Electronic Engineering Principles
- Engineering Materials 1
- Engineering Mathematics 1
- Introduction to Engineering
- Mechanics 1
- Communicating for Personal and Team Effectiveness
- Thermofluids 1
- General Education 1
- General Education 2

**ADVANCED MODULES (OPTIONAL)**
- Advanced Mathematics 2
- Advanced Mathematics 3

**THIRD YEAR**
- Circuit Theory
- Communicating for Professional Effectiveness
- Internship/Project
- Mechanics 3
- Programmable Logic Controllers
- Robotic Integration & Programming
- Systems & Control
- Organisational Management
- Workplace Safety & Health Management

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- Physics

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**PHEH JING JIE**
DMRO Gold Medallist, Class of 2017

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  - University of Glasgow
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Global Exploration

At SP Engineering, our students get to experience the world and learn from other cultures through overseas industrial attachments, learning journeys, competitions and community service trips in places such as Australia, China, South Korea, Sri Lanka and more.
SP also offers the following engineering courses:

- School of Architecture and the Built Environment
- Diploma in Civil Engineering with Business
- School of Chemical and Life Sciences
  Diploma in Chemical Engineering
- Singapore Maritime Academy
  Diploma in Marine Engineering

For entry requirements and information for the following courses:

- S88 Aeronautical Engineering
- S58 Bioengineering
- S40 Common Engineering Programme
- S91 Mechanical Engineering
- S73 Mechatronics and Robotics

Please contact:

**SCHOOL OF ELECTRICAL & ELECTRONIC ENGINEERING**

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The Polytechnic reserves the right to alter the information in this publication. Information is correct as at 2 January 2018.