tp 'imagine

powering global progress

school of engineering

CREATING TOMORROW

Imagining tomorrow with GenAI-powered images

SCHOOL OF ENGINEERING

Engineers revolutionise cities and communities, improve how we live, work and play, transform the future of healthcare with innovative biomedical inventions and develop disruptive digital technologies that make it all possible!

As today's Industry 4.0 revolution gathers pace, new emerging technologies such as artificial intelligence, automation, and the Internet of Things are being used in more and more applications, enhancing every aspect of our lives. The School of Engineering will prepare you to be at the forefront of this exciting change!

Push the boundaries of modern engineering with our offering of 10 exciting diploma courses and a Common Entry Programme. You'll receive broad-based training in core engineering areas before specialising in exciting fields such as advanced manufacturing, aerospace, aviation, sustainable energy, integrated facility management or biomedical engineering.

With quality lecturers, a robust technology innovation culture, prominent industry partners, a multi-disciplinary curriculum and many tie-ups with local and foreign universities, an engineering diploma from the School ensures that you'll be equipped with the versatility and the edge you need to thrive in today's digital-first economy.

Get ready to engineer your bright future here – one dedicated to improving the world we live in!

. . . .

Common entry programme
- [T56] Common Engineering Programme

Full-time diploma courses
- [T50] Aerospace Electronics
- [T51] Aerospace Engineering
- [T29] Architectural Technology & Building Services
- [T04] Aviation Management
- [T38] Biomedical Engineering
- [T43] Business Process & Systems Engineering
- [T13] Computer Engineering
- [T65] Electronics
- [T28] Integrated Facility Management
- [T66] Mechatronics

General and admissions enquiries
Tel : 6788 2000
Email : admissions@tp.edu.sg

Course enquiries
Tel : 6780 5144
Email : enghotline@tp.edu.sg
Website : www.tp.edu.sg/eng

For the latest tuition fees, visit:
www.tp.edu.sg/coursefees

MINIMUM ENTRY REQUIREMENTS

To be eligible for any of these diploma courses, you must have 5 GCE O Level subjects comprising:

English Language
Grades 1 - 7

Mathematics (Elementary/Additional)
Grades 1 - 6

Any one of the following subjects
Grades 1 - 6

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

Best two other subjects, excluding CCA

For details on ELR2B2 computation, visit: **www.tp.edu.sg/elr2b2**

FURTHER STUDIES

You can gain admission into a wide range of degree programmes at local and overseas universities in USA, UK, Australia and New Zealand. Advanced standing for specific modules, or up to two years exemption, may be given depending on the relevance of the degree programme.

COMMON ENGINEERING PROGRAMME

Scan for full details, or visit:
www.tp.edu.sg/t56

The Course

This programme is a common entry point to seven different engineering diploma courses. If you're keen to pursue an engineering career but are still determining which of the many engineering disciplines would suit you best, then this is the programme for you. With seven diploma courses, this programme offers you ultimate flexibility.

Under this programme, you'll take the same foundation subjects as students who have enrolled directly in their respective diploma courses. The programme provides you with the time and opportunity to explore your strengths and interests further. With this experience, you'll then be ready to pick one of the following diploma courses at the end of your first year:

- [T50] Aerospace Electronics
- [T51] Aerospace Engineering
- [T38] Biomedical Engineering
- [T43] Business Process & Systems Engineering
- [T13] Computer Engineering
- [T65] Electronics
- [T66] Mechatronics

Upon successfully completing this programme, you'll graduate with the same diploma as students who have joined a particular diploma course right from the start.

Foundation Subjects
- Circuit Analysis
- Computer Programming for Problem Solving
- Digital Fundamentals 1 & 2
- Electronic Devices & Circuits
- Electronic Prototyping
- Engineering Mathematics 1 & 2
- Engineering Physics

Years 2 and 3 Subjects:
The core subjects that you take in your second and third year of studies will depend on which of the seven diploma courses you stream into.

TP Fundamentals (TPFun) Subjects
These subjects equip you with the crucial 21st-century life skills needed to navigate the modern workplace as an agile, forward-thinking individual and team player.

- Student Internship Programme
- Effective Communication
- Professional Communication
- Current Issues & Critical Thinking
- Career Readiness
- Career Management
- Global Studies
- Guided Learning
- Innovation & Entrepreneurship
- Leadership Fundamentals
- Leadership in Action
- Sports & Wellness
- Sustainability & Climate Action

Career Opportunities
This programme allows you to defer your decision on which course to take, so you can have more time to observe a particular industry's performance and the economic situation, before deciding on the course to pursue.

Depending on your specialisation, you'll be able to find jobs in any of the following engineering sectors: aerospace, biomedical sciences, computer and IT, clean energy, manufacturing and automation, as well as those outside the engineering sphere.

Note: Any special health requirements for a specific diploma course will also apply if you choose to branch into that course.

T50 AEROSPACE ELECTRONICS

Scan for full details, or visit:
www.tp.edu.sg/t50

The Course

This course equips you with fundamental and applied knowledge of aircraft electrical, communication, navigation and flight control systems. You'll undergo a rigorous aerospace training programme, including practical modules offered together with our partner and world-renowned aircraft maintenance training provider, Lufthansa Technical Training (LTT) of Germany.

As TP is the only polytechnic certified by the Civil Aviation Authority of Singapore (CAAS) as a SAR-147 Approved Maintenance Training Organisation (AMTO), your diploma will be more widely recognised by employers. Your Aircraft Maintenance Licence (AML) apprenticeship duration after graduating from TP will also be significantly shortened by up to 10 months.

If you aspire to be a pilot, you can also fulfil your dream by taking flying lessons as part of your Student Internship Programme in your final semester of study, to get that coveted Private Pilot Licence (PPL).

Year 1 Subjects
- Avionic Systems
- Circuit Analysis
- Computer Programming for Problem Solving
- Digital Fundamentals 1 & 2
- Electronic Devices & Circuits
- Engineering Mathematics 1 & 2
- Engineering Physics

Year 2 Subjects
- Aerospace Maintenance Practices
- Aircraft Electrical Fundamentals
- Aircraft Electronics & Servomechanisms
- Data Visualisation & Analytics
- Engineering Mathematics 3
- Fundamentals of Aeronautical Science

Year 3 Subjects
- Aircraft Digital Systems
- Aviation Legislation & Human Factors
- Basic Aerodynamics

IoT & Automation Elective Cluster#
- Intelligent Automation
- Internet of Things Project

Aerospace Operations Elective Cluster#
- Lean Processes
- Unmanned Aircraft Operations

Students to choose one of these elective clusters

TP Fundamentals (TPFun) Subjects

These subjects equip you with the crucial 21st-century life skills needed to navigate the modern workplace as an agile, forward-thinking individual and team player.

- Student Internship Programme
- Effective Communication
- Professional Communication
- Current Issues & Critical Thinking
- Career Readiness
- Career Management
- Global Studies
- Guided Learning
- Innovation & Entrepreneurship
- Leadership Fundamentals
- Leadership in Action
- Sports & Wellness
- Sustainability & Climate Action

Career Opportunities

Singapore has been Asia's most comprehensive aerospace maintenance, repair and overhaul (MRO) hub. At its peak, our aerospace industry accounted for a quarter of the region's MRO volume, when output reached about S$9 billion annually, with about 21,000 workers spread across more than 100 local and international aerospace companies.

The aerospace sector has since regained its momentum after the inevitable slowdown during the COVID-19 pandemic, and the industry is now poised to continue its exponential growth as air travel and world trade look set to surpass the pre-pandemic levels.

This spells exciting job opportunities for you, some of which are:
- Avionics Test Engineers
- Licensed Aircraft Engineers (LAE)
- Process / Quality Engineers
- Technical Service Engineers

Note: Applicants should not be suffering from mild or severe colour vision deficiency, uncontrolled epilepsy, profound hearing loss, severe vision impairment or any physical impairment, or be physically dependent on mobility equipment.

T51 AEROSPACE ENGINEERING

Scan for full details, or visit:
www.tp.edu.sg/t51

The Course

This course equips you with a strong foundation specialising in aerodynamics, aircraft engines, structures, and systems. Your learning journey will include:

- a six-month practical training stint in our Lufthansa Technical Training (LTT) Centre on campus
- opportunities for overseas study trips to Germany and the USA
- attachment opportunities to top aerospace companies for your internship

As TP is the only polytechnic certified by the Civil Aviation Authority of Singapore (CAAS) as a SAR-147 Approved Maintenance Training Organisation (AMTO), prospective employers will widely recognise your diploma. Your Aircraft Maintenance Licence (AML) apprenticeship duration after graduating from TP will also be significantly shortened by up to 10 months.

Do you aspire to be a pilot? You can fulfil this dream by taking flying lessons as part of your Student Internship Programme in your final semester of study to get that coveted Private Pilot Licence (PPL).

Year 1 Subjects

- Circuit Analysis
- Computer Programming for Problem Solving
- Digital Fundamentals 1
- Electronic Devices & Circuits
- Engineering Drawing
- Engineering Mathematics 1 & 2
- Engineering Physics
- Statics & Strength of Materials
- Thermodynamics

Year 2 Subjects

- Aircraft Electrical Fundamentals
- Aircraft Electronics & Digital Systems
- Aviation Legislation & Human Factors
- Basic Aerodynamics
- Data Visualisation & Analytics
- Engineering Materials
- Engineering Mathematics 3
- Fluid Mechanics
- Gas Turbine Engine
- Principles of Dynamics

Year 3 Subjects

Aerospace System Design (ASD) Option#

- Aircraft Structures & Composites
- Engine Maintenance & Workshop Practices
- Major Project

Lufthansa Technical Training (LTT) Option^

- Aerospace Maintenance Practices

Students to take either # or ^

TP Fundamentals (TPFun) Subjects

These subjects equip you with the crucial 21st-century life skills needed to navigate the modern workplace as an agile, forward-thinking individual and team player.

- Student Internship Programme
- Effective Communication
- Professional Communication
- Current Issues & Critical Thinking
- Career Readiness
- Career Management
- Global Studies
- Guided Learning
- Innovation & Entrepreneurship
- Leadership Fundamentals
- Leadership in Action
- Sports & Wellness
- Sustainability & Climate Action

Career Opportunities

Singapore has been Asia's most comprehensive aerospace maintenance, repair and overhaul (MRO) hub. At its peak, our aerospace industry accounted for a quarter of the region's MRO volume, when output reached about S$9 billion annually, with about 21,000 workers spread across more than 100 local and international aerospace companies.

The aerospace sector has since regained its momentum after the inevitable slowdown during the COVID-19 pandemic, and the industry is now poised to continue its exponential growth as air travel and world trade look set to surpass the pre-pandemic levels.

This spells exciting job opportunities for you, some of which are:

- Aero-mechanical Systems Specialists
- Aerospace Component Design Engineers
- Engine or Power-plant Technologists
- Licensed Aircraft Engineers (LAE)

Note: Applicants should not be suffering from mild or severe colour vision deficiency, uncontrolled epilepsy, profound hearing loss, severe vision impairment or any physical impairment, or be physically dependent on mobility equipment.

ARCHITECTURAL TECHNOLOGY & BUILDING SERVICES

Scan for full details, or visit:
www.tp.edu.sg/t29

The Course

You would have heard about climate change, but did you know that a building's design can play a part in combating it?

This is the first multidisciplinary polytechnic course that focuses on using technology and digitalisation to design smart and sustainable buildings for the future. You'll learn, for example, how to use innovative Building Information Modelling (BIM) tools and design strategies to help reduce a building's energy consumption and carbon footprint, assess the economic viability of improving energy performance, and even select sustainable materials for green buildings. With this robust knowledge and skills, you can create a greener and more sustainable built environment to help combat climate change!

During your course, you can also attain the Fire Safety Manager certification from SCDF, and the Digital Delivery Management Certification – Tier 4 (Provisional) from Building Smart Singapore.

Year 1 Subjects
- Circuit Analysis
- Computer Programming for Problem Solving
- Digital Modelling for Architecture 1
- Eco-Architecture Design 1
- Electrical Design & Installation
- Engineering Mathematics 1 & 2
- Engineering Physics
- Introduction to Built Environment

Year 2 Subjects
- Air-Conditioning & Mechanical Ventilation
- Building Management Systems
- Building Performance Modelling
- Building Systems Modelling
- Digital Modelling for Architecture 2
- Eco-Architecture Design 2
- Energy Management & Audit
- Integrated Design Studio

Year 3 Subjects
- Data Visualisation & Analytics
- Fire & Life Safety Management
- Major Project

TP Fundamentals (TPFun) Subjects
These subjects equip you with the crucial 21st-century life skills needed to navigate the modern workplace as an agile, forward-thinking individual and team player.

- Student Internship Programme
- Effective Communication
- Professional Communication
- Current Issues & Critical Thinking
- Career Readiness
- Career Management
- Global Studies
- Guided Learning
- Innovation & Entrepreneurship
- Leadership Fundamentals
- Leadership in Action
- Sports & Wellness
- Sustainability & Climate Action

Career Opportunities
In line with the Singapore Green Plan 2030, which seeks to rally bold and collective action to tackle climate change, there will be a continued national focus on sustainable development. A major target is to make 80% of all buildings in the country "green" by developing eco-friendly districts, super-low energy buildings and carbon-neutral schools. Existing buildings must undergo retrofitting works, and new buildings must incorporate environment-friendly designs. This promises abundant job opportunities for professionals with skill sets in sustainable design and green building technologies.

You can make your mark in sustainable design- and engineering-based careers within the built environment sector, as:
- Architectural Assistants
- BIM Modellers (Architecture and M&E)
- Building Automation Technologists (Facility Management)
- Energy & Sustainability Consultants (Associate SCEM)
- Engineering Assistants (Mechanical & Electrical)
- Simulation Specialists (Building Performance)

Note: Applicants should not be suffering from uncontrolled epilepsy, profound hearing loss or severe vision impairment.

AVIATION MANAGEMENT

Scan for full details, or visit:
www.tp.edu.sg/t04

The Course

This course is the first Aviation Management programme of its kind in Asia. You'll learn and combine a broad range of specialised aviation management skills with business knowledge. From learning how to manage a world-class airport to acquiring the skill sets to operate the best airlines in the world, you'll be fully equipped to take off on an exciting career in the aviation industry!

No aviation programme is complete without experiencing flight! In this course, you may take to the skies as a cabin crew member with a Singapore-based airline as part of your internship. Or, you could take the first step towards becoming a pilot via our Aeronautical Science Option, where you'll undergo the required flying and theoretical lessons to obtain a Private Pilot Licence (PPL). Selected foundational subjects in this option will also give you an advantage if you pursue the Commercial Pilot Licence (CPL) or Air Transport Pilot Licence (APTL) in the future. These special arrangements, not offered in any similar course by other local polytechnics, will give you a head start in the aviation industry.

Year 1 Subjects
- Airline Operations
- Business Fundamentals
- Computer Programming for Problem Solving
- Engineering Mathematics 1 & 2
- Introduction to Civil Aviation
- Principles of Aeronautical Science
- Quantitative Methods

Year 2 Subjects
- Airfield Systems
- Airline Management
- Airport Operations & Management
- Airport Systems
- Aviation Safety & Security
- Business Continuity Management
- Data Visualisation & Analytics
- Project Management
- Service Quality & Management

Year 3 Subjects
- Major Project

Aeronautical Science Option#
- Air Navigation
- Flight Planning
- Meteorological Studies

Airport & Airline Option#
- Air Traffic Management
- Airport Administration
- Management of Air Cargo

Students to choose one of these options

TP Fundamentals (TPFun) Subjects
These subjects equip you with the crucial 21st-century life skills needed to navigate the modern workplace as an agile, forward-thinking individual and team player.

- Student Internship Programme
- Effective Communication
- Professional Communication
- Current Issues & Critical Thinking
- Career Readiness
- Career Management
- Global Studies
- Guided Learning
- Innovation & Entrepreneurship
- Leadership Fundamentals
- Leadership in Action
- Sports & Wellness
- Sustainability & Climate Action

Career Opportunities
As the demand for air travel continues to grow, and countries worldwide ramp up their economic activities post-COVID-19, things are looking up for the aviation sector!

Be part of the global aviation business, which, at its peak, supported 63 million jobs and made up 3.5% of the global GDP. With the world's best airport and airline at your doorstep and many top airlines and aerospace firms operating in Singapore, this is the place to be for aviation training. Boosted by strong government support, our aviation sector will continue to require highly skilled professionals to operate and manage existing and upcoming aviation services and facilities. Your strong management skills will also give you an advantage in various business and hospitality-related domains.

These are some of the exciting jobs that could be yours!
- Air Traffic Controllers
- Airline Flight Controllers
- Airport Operations Centre Managers
- Airside Duty Managers
- Airside Officers
- Duty Terminal Managers
- Ground Services Officers

Note: Applicants should not be suffering from uncontrolled epilepsy, profound hearing loss or severe vision impairment.

BIOMEDICAL ENGINEERING

Scan for full details, or visit:
www.tp.edu.sg/t38

The Course

This interdisciplinary course provides you with integrated training in biological techniques and biomedical instrumentation, including BioMEMS (Biomedical Micro-Electro-Mechanical Systems), microfluidics, flexible hybrid electronics for healthcare wearables, smart healthcare devices using artificial intelligence, and intelligent wearable healthcare sensors. Alongside engineering and digital electronics principles, you'll learn the fundamentals of developing medical devices used in hospitals and research on human anatomy and physiology.

In your final year, you can choose one of these elective clusters for further specialisation: Biomedical Design & Devices, Clinical Equipment & Process, Healthcare Informatics, Sustainability in Engineering, or Work-Based Learning. Selected students can also embark on a one-year internship (compared to 4 months for most other diplomas) to gain more industry experience. You can also join the University Pathway Programme (SUTD), which allows you to take university modules during your final year and gain conditional admission into Singapore University of Technology and Design, shortening the time needed to get your degree.

Year 1 Subjects
- Circuit Analysis
- Computer Programming for Problem Solving
- Digital Fundamentals 1 & 2
- Electronic Devices & Circuits
- Electronic Prototyping
- Engineering Mathematics 1 & 2
- Engineering Physics

Year 2 Subjects
- Chemistry
- Data Visualisation & Analytics
- Engineering Mathematics 3
- Human Anatomy & Physiology
- Medical Devices
- Medical Device Manufacturing Practices
- Medical Electronics
- Medical Imaging & Informatics
- Microcontroller Applications

Year 3 Subjects
- Major Project

Advanced Engineering Skills Elective Cluster#
- Advanced Skills Practices

Biomedical Design & Devices Elective Cluster#
- Audiometry & Hearing Devices
- CAD & Additive Manufacturing

Clinical Equipment & Process Elective Cluster#
- Clinical Laboratory Equipment
- Medical Biochemistry

Healthcare Informatics Elective Cluster#
- Healthcare Analytics
- Patient Monitoring Technology

Sustainability in Engineering Elective Cluster#
(Choose any 2 subjects in this cluster)
- Green Urban Transportation & Energy Storage
- Life Cycle Analysis
- Renewable Energy Technologies
- Solar Photovoltaic Technology & Leasing

Structured Work-Based Learning Elective Cluster#
- Work-Based Learning

University Pathway Programme (SUTD)^
- Computational Thinking for Design
- Modelling & Analysis
- Physical World
- Social Science: Understanding Behaviour, Culture & Society

Students to choose one of these elective clusters
^ *For selected students*

TP Fundamentals (TPFun) Subjects
These subjects equip you with the crucial 21st-century life skills needed to navigate the modern workplace as an agile, forward-thinking individual and team player.

- Student Internship Programme
- Effective Communication
- Professional Communication
- Current Issues & Critical Thinking
- Career Readiness
- Career Management
- Global Studies
- Guided Learning
- Innovation & Entrepreneurship
- Leadership Fundamentals
- Leadership in Action
- Sports & Wellness
- Sustainability & Climate Action

Career Opportunities

The global market for medical devices is predicted to swell to US$800 billion in value by 2030 (according to research by auditing firm KPMG in 2023). Singapore, which has established itself as a strategic hub for medical technology (MedTech) manufacturing and a global centre for advanced patient care, is poised to benefit immensely from this boom. Supported by greater health awareness worldwide, this diploma course will open the door to many lucrative job opportunities for you in the fields of manufacturing, regulatory sciences and clinical services.

Exciting careers await you as:
- Biomedical Assistant Engineers
- Biomedical Technical Officers
- Field Services Engineers
- Imaging Specialists
- Medical Devices Specialists
- Medical Product Specialists
- Medical Sales Representatives
- Medical Technologists
- Regulatory Affairs Executives

Note: Applicants should not be suffering from severe colour vision deficiency, uncontrolled epilepsy, profound hearing loss or severe vision impairment.

BUSINESS PROCESS & SYSTEMS ENGINEERING

Scan for full details, or visit:
www.tp.edu.sg/t43

The Course

As Singapore strives to be a world-class service centre and logistics hub, there will be a demand for tech-savvy professionals with multi-disciplinary knowledge and skills who can offer solutions to business issues and problems and add value to their organisations.

Here, you'll receive training in business principles and operation concepts, as well as engineering fundamentals and data analytics for the digital economy. You'll be able to find your niche in a wide variety of industries, including the manufacturing, logistics and service sectors in Singapore.

The course features two main areas:
(i) **Business Analytics**, which concerns the systematic investigation, prediction and prescription of business performance to provide insights for future planning, known as forward business management
(ii) **Systems Engineering**, which deals with the management, improvement and optimisation of business processes using systems thinking approach to enhance business productivity and profits

Year 1 Subjects
- Business Fundamentals
- Circuit Analysis
- Computer Programming for Problem Solving
- Digital Fundamentals 1
- Engineering Mathematics 1
- Introduction to Processes & Systems
- Quantitative Methods

Year 2 Subjects
- Customer Relationship Management
- Data Visualisation & Analytics
- Decision Analysis
- Manufacturing Logistics & Simulation
- Process Management Systems
- Process Optimisation & Improvement
- Project Management
- Sustainable Supply Chain Management
- Systems Modelling & Simulation

Cluster Elective Subjects
- Intelligent Automation #2A
- Procurement & Materials Management #2B

Year 3 Subjects
- Major Project

Cluster Elective Subjects
- IoT Security #3A
- Data Management for Process Analytics #3A
- Distribution Centre Management #3B
- International Trade & Transport #3B
- Work-Based Learning #3C

TP Fundamentals (TPFun) Subjects
These subjects equip you with the crucial 21st-century life skills needed to navigate the modern workplace as an agile, forward-thinking individual and team player.

- Student Internship Programme
- Effective Communication
- Professional Communication
- Current Issues & Critical Thinking
- Career Readiness
- Career Management
- Global Studies
- Guided Learning
- Innovation & Entrepreneurship
- Leadership Fundamentals
- Leadership in Action
- Sports & Wellness
- Sustainability & Climate Action

Career Opportunities

Armed with the knowledge of fundamental business principles, data analytics, business process improvement and systems engineering, you will be able to identify gaps in business or logistics operations through effective data analysis, automate processes to remove repetitive manual work, and use predictive analytics to effectively deploy operations. You will be empowered to navigate in any company regardless of its size or stage of digitalisation, in sectors such as manufacturing, logistics, healthcare, finance, retail, customer service, as well as sales and marketing.

Your highly transferrable skill sets will allow you to secure exciting jobs such as:
- Business Analysts
- Customer Relationship Executives
- Logistics & Supply Chain Executives
- Market Researchers
- Productivity & Management Systems Executives
- Quality Assurance & Control Specialists

With this diploma, you will also be well-equipped to pursue further studies in business, finance, accountancy, the arts and social sciences, and law, as well as engineering.

Note: Applicants should not be suffering from severe colour vision deficiency or severe vision impairment.

#Year 2 and 3 students must choose one of these cluster elective subject combinations:

(1) 2A and 3A
(2) 2B and 3B
(3) 2A and 3C

Scan for full details, or visit:
www.tp.edu.sg/t13

The Course

With more and more companies embarking on digitalising their processes and businesses and placing high importance on applying the latest digital solutions, there is a growing demand for talent in the field of computer engineering. This course covers the traditional computer engineering areas and the emerging fields of the Internet of Things (IoT), data analytics, artificial intelligence, cyber security and smart manufacturing, empowering you to drive Singapore's economic transformation.

The course will prepare you to take internationally recognised industry certification examinations such as those from National Instruments, UI Path, Microsoft and Unity3D. Selected students can also embark on a year-long internship with the Government Technology Agency of Singapore (GovTech) to gain robust industry experience. You can also join the University Pathway Programme (SUTD), which allows you to take university modules during your final year and gain conditional admission into Singapore University of Technology and Design, shortening the time needed to get your degree.

Year 1 Subjects
- Circuit Analysis
- Computer Programming for Problem Solving
- Digital Fundamentals 1 & 2
- Electronic Devices & Circuits
- Electronic Prototyping
- Engineering Mathematics 1 & 2
- Engineering Physics

Year 2 Subjects
- Artificial Intelligence & Machine Learning
- Data Visualisation & Analytics
- Engineering Mathematics 3
- Full Stack Development
- Intelligent Automation
- Internet of Things Project
- Microcontroller Applications
- Object-oriented Programming

Cluster Elective Subjects
- Advanced Skills Practices #
- IoT Security # 2B
- System & Network Integration # 2A
- 3D Modelling for Virtual Reality # 2C

Sustainability in Engineering Elective Cluster#
(Choose 1 subject under this cluster)
- Green Urban Transportation & Energy Storage
- Life Cycle Analysis
- Renewable Energy Technologies
- Solar Photovoltaic Technology & Leasing

Year 3 Subjects
- Major Project

Cluster Elective Subjects
- Distribution Centre Management # 3B
- Interactive Programming for Virtual Reality # 3C
- Mobile Device Applications Development # 3A
- Work-Based Learning #

Sustainability in Engineering Elective Cluster#
(Choose 1 subject under this cluster)
- Green Urban Transportation & Energy Storage
- Life Cycle Analysis
- Renewable Energy Technologies
- Solar Photovoltaic Technology & Leasing

University Pathway Programme (SUTD)^
- Computational Thinking for Design
- Modelling & Analysis
- Physical World
- Social Science: Understanding Behaviour, Culture & Society

^ *For selected students*

TP Fundamentals (TPFun) Subjects
These subjects equip you with the crucial 21st-century life skills needed to navigate the modern workplace as an agile, forward-thinking individual and team player.

- Student Internship Programme
- Effective Communication
- Professional Communication
- Current Issues & Critical Thinking
- Career Readiness
- Career Management
- Global Studies
- Guided Learning
- Innovation & Entrepreneurship
- Leadership Fundamentals
- Leadership in Action
- Sports & Wellness
- Sustainability & Climate Action

Career Opportunities
With your expertise and mastery in both hardware and software, you'll have a competitive edge over professionals who specialise in only one of these areas.

You can look forward to many exciting job opportunities and excellent career prospects as:
- Data Analysts
- Embedded Systems Engineers
- Hardware Engineers
- Integration Engineers
- Network / Servers / Database / Computer Systems Administrators
- Software / Web / Mobile Application Developers or Programmers
- Systems Analysts

Note: Applicants should not be suffering from severe colour vision deficiency, uncontrolled epilepsy, profound hearing loss or severe vision impairment.

#Year 2 and 3 students must choose one of these cluster elective subject combinations:

(1) Advanced Skills Practices **(3)** 2B and 3B **(5)** One subject from the Sustainability in Engineering elective cluster in each year
(2) 2A and 3A **(4)** 2C and 3C **(6)** Work-Based Learning

Scan for full details, or visit:
www.tp.edu.sg/t65

The Course

From smartphones to electric cars, we live in a hyper-connected world driven by cutting-edge technologies, where electronic circuits and devices are found in almost every application or appliance. This course will equip you with future-ready skill sets in emerging technologies such as advanced manufacturing, artificial intelligence and the Internet of Things, as well as their applications in various fields like healthcare, assistive technology, and green innovations for the environment.

In your final year, you can choose one of these elective clusters for further specialisation: Aerospace Electronics (Avionics), Advanced Engineering Skills, Industrial Artificial Intelligence, Intralogistics & Cybersecurity, Robotics, Semiconductor Technology, Sustainability in Engineering, or Work-Based Learning. Selected students can also embark on a one-year internship (compared to 4 months for most other diplomas) to gain more industry experience. You can also join the University Pathway Programme (SUTD), which allows you to take university modules during your final year and gain conditional admission into Singapore University of Technology and Design, shortening the time needed to get your degree.

Year 1 Subjects
- Circuit Analysis
- Computer Programming for Problem Solving
- Digital Fundamentals 1 & 2
- Electronic Devices & Circuits
- Electronic Prototyping
- Engineering Mathematics 1 & 2
- Engineering Physics

Year 2 Subjects
- Advanced Electronics & Communication
- Circuit & Control Systems
- Data Visualisation & Analytics
- Digital Sensors & Integrated Circuit Applications
- Engineering Mathematics 3
- Integrated Project
- Microcontroller Applications
- Power Electronics & Drives
- Printed Circuit Board Design

Year 3 Subjects
- Major Project

Advanced Engineering Skills Elective Cluster#
- Advanced Skills Practices

Avionics Elective Cluster#
- Aircraft Digital Systems
- Avionic Systems

Industrial Artificial Intelligence Elective Cluster#
- Edge Computing & Machine Learning
- Industrial IoT Analytics

Intralogistics & Cybersecurity Elective Cluster#
- Distribution Centre Management
- IoT Security

Robotics Elective Cluster#
- Robotics & Automation
- Smart Manufacturing System

Semiconductor Technology Elective Cluster#
- Cleanroom Equipment & Technology
- IC Process Integration

Sustainability in Engineering Elective Cluster#
(Choose any 2 subjects under this cluster)
- Green Urban Transportation & Energy Storage
- Life Cycle Analysis
- Renewable Energy Technologies
- Solar Photovoltaic Technology & Leasing

Structured Work-Based Learning Elective Cluster#
- Work-Based Learning

University Pathway Programme (SUTD)^
- Computational Thinking for Design
- Modelling & Analysis
- Physical World
- Social Science: Understanding Behaviour, Culture & Society

 # Students to choose one of these elective clusters
^ For selected students

TP Fundamentals (TPFun) Subjects
These subjects equip you with the crucial 21st-century life skills needed to navigate the modern workplace as an agile, forward-thinking individual and team player.

- Student Internship Programme
- Effective Communication
- Professional Communication
- Current Issues & Critical Thinking
- Career Readiness
- Career Management
- Global Studies
- Guided Learning
- Innovation & Entrepreneurship
- Leadership Fundamentals
- Leadership in Action
- Sports & Wellness
- Sustainability & Climate Action

Career Opportunities
Singapore is home to many of the world's leading electronics and semiconductor manufacturers. With this diploma, you'll have dynamic and exciting career prospects in the many diverse sectors that use consumer and industrial electronics today.

Potential jobs for you include:
- Electronics / Automation Engineers
- Field Service / Application Engineers
- IoT/System Integration Engineers
- Maintenance / Equipment Engineers
- Production / Manufacturing / Process Engineers
- Software / Firmware / Embedded Engineers
- Test / QA / QC Engineers

Note: Applicants should not be suffering from severe colour vision deficiency, uncontrolled epilepsy, profound hearing loss or severe vision impairment.

(T28) INTEGRATED FACILITY MANAGEMENT

Scan for full details, or visit:
www.tp.edu.sg/t28

The Course

Buildings and facilities developed today must be beautiful, functional, as well as highly sustainable, energy-efficient, and integrated with smart technologies. This diploma course will equip you with the skill sets in emerging technologies needed to manage major physical establishments' amenities, aesthetics, and functionality. You'll gain exposure to Sustainability areas like Green Buildings, Life Cycle Analysis, Data Analytics and Data Visualisation, and smart technologies like Building Information Modelling (BIM), Internet of Things (IoT), Robotics & Automation and Asset Management.

Additionally, you can specialise in one of three areas: Aviation Facilities, Hospitality Facilities, or Smart Facilities. You can also join the University Pathway Programme (NUS), which allows you to take university modules during your final year and earn credits to enhance your admission chances for the Infrastructure & Project Management (IPM) degree course at the National University of Singapore. As the world's first diploma accredited by the International Facility Management Association (IFMA), this course aligns closely with IFMA's core competencies.

Year 1 Subjects

- Air-conditioning & Mechanical Ventilation
- Building Information Modelling Collaboration
- Electrical Design & Installation
- Engineering Mathematics 1 & 2
- Facilities Operations & Maintenance
- Security & Surveillance
- Virtual Design & Facility Planning
- Workplace Safety & Health for Facility Management

Year 2 Subjects

- Computer Programming for Problem Solving
- Contract Management
- Data Visualisation & Analytics
- Energy Management & Audit
- Fire & Life Safety Management
- Project Management
- Sustainable Facility Management

Aviation Facilities Elective Cluster

- Airport Administration #
- Airport Operations & Management #
- Airport Systems #

Hospitality Facilities Elective Cluster

- Business & Leisure Events #
- Customer Experience Innovation #
- Introduction to Hospitality & Tourism #

Smart Facilities Elective Cluster

- Building Management System #
- Smart FM & Asset Enhancement #
- Intelligent Automation #

Year 3 Subjects

- Major Project
- Building Performance Modelling
- Service Quality & Management

University Pathway Programme (NUS)^

- Infrastructure & Facilities Management
- Infrastructure & Project Management Law
- Introduction to Building Performance
- Project Feasibility

^ *For selected students*

TP Fundamentals (TPFun) Subjects

These subjects equip you with the crucial 21st-century life skills needed to navigate the modern workplace as an agile, forward-thinking individual and team player.

- Student Internship Programme
- Effective Communication
- Professional Communication
- Current Issues & Critical Thinking
- Career Readiness
- Career Management
- Global Studies
- Guided Learning
- Innovation & Entrepreneurship
- Leadership Fundamentals
- Leadership in Action
- Sports & Wellness
- Sustainability & Climate Action

Career Opportunities

Armed with multidisciplinary skills, you'll find employment in the facilities management or development teams in the airport, hospitality and tourism, events and convention, leisure and entertainment, integrated resort, as well as business and finance sectors, as:

- BIM Assistant Specialists (Digital Delivery)
- Contract/Procurement Executives
- Event Managers
- Facilities Executives
- Fire Safety Managers
- Sustainability Managers

You'll also be able to pursue numerous certifications recognised by the industry, such as:

- BizSAFE Level 2 (Risk Management)
- BizSAFE Level 4 (Workplace Safety & Health Management)
- Fire Safety Manager certification from SCDF
- Digital Delivery Management Certification – Tier 4 (Provisional)
- ICDL Microsoft Office Certification (PowerPoint, Excel and Excel Advanced)
- Project Management Associate Certification (CAPM)

Note: Applicants should not be suffering from severe vision impairment.

Students to choose three of these cluster elective subjects

The Course

Industry 4.0 is transforming the modern workplace. This course prepares you for the new era of advanced manufacturing, where humans, machines, and systems communicate and collaborate as one. You'll learn to master the application of robotics, automation, 3D printing and data analytics in technological areas such as cyber-physical systems, virtual manufacturing, machine vision and pattern recognition.

In your final year, you can choose one of these exciting elective clusters for further specialisation: 3D Printing, Advanced Engineering Skills, Advanced Manufacturing, Aerospace Systems, Intralogistics & Cybersecurity, Semiconductor Technology, Sustainability in Engineering, or Structured Work-based Learning. Selected students can also embark on a one-year internship (compared to 4 months for most other diplomas) to gain more industry experience. You can also join the University Pathway Programme (SUTD), which allows you to take university modules during your final year of this diploma and gain conditional admission into Singapore University of Technology and Design, shortening the time needed to get your degree.

Year 1 Subjects
- Circuit Analysis
- Computer Programming for Problem Solving
- Digital Fundamentals 1 & 2
- Electronic Devices & Circuits
- Electronic Prototyping
- Engineering Mathematics 1 & 2
- Engineering Physics

Year 2 Subjects
- Data Visualisation & Analytics
- Engineering Drawing
- Engineering Mathematics 3
- Integrated Project
- Introduction to Smart Automation
- Machining Technology
- Principles of Dynamics
- Robotics & Automation
- Statics & Strength of Materials

Year 3 Subjects
- Major Project

3D Printing Elective Cluster#
- Advanced CAD & Simulation
- CAD & Additive Manufacturing

Advanced Engineering Skills Elective Cluster#
- Advanced Skills Practices

Advanced Manufacturing Elective Cluster#
- Machine Vision & Pattern Recognition
- Smart Manufacturing System

Aerospace Systems Elective Cluster#
- Gas Turbine Engine
- Thermodynamics

Intralogistics & Cybersecurity Elective Cluster#
- Distribution Centre Management
- IoT Security

Semiconductor Technology Elective Cluster#
- Cleanroom Equipment & Technology
- IC Process Integration

Sustainability in Engineering Elective Cluster#
(Choose any 2 subjects under this cluster)
- Green Urban Transportation & Energy Storage
- Life Cycle Analysis
- Renewable Energy Technologies
- Solar Photovoltaic Technology & Leasing

Structured Work-Based Learning Elective Cluster#
- Work-Based Learning

University Pathway Programme (SUTD)^
- Computational Thinking for Design
- Modelling & Analysis
- Physical World
- Social Science: Understanding Behaviour, Culture & Society

 # Students to choose one of these elective clusters
^ For selected students

TP Fundamentals (TPFun) Subjects
These subjects equip you with the crucial 21st-century life skills needed to navigate the modern workplace as an agile, forward-thinking individual and team player.

- Student Internship Programme
- Effective Communication
- Professional Communication
- Current Issues & Critical Thinking
- Career Readiness
- Career Management
- Global Studies
- Guided Learning
- Innovation & Entrepreneurship
- Leadership Fundamentals
- Leadership in Action
- Sports & Wellness
- Sustainability & Climate Action

Career Opportunities
With increasing consumer demand for customised products and smart digital services in growth areas such as advanced manufacturing, aerospace, robotics, artificial intelligence, precision engineering and pharmaceutical manufacturing, you'll have excellent job prospects!

You can excel in diverse sectors, from precision engineering and integrated circuit manufacturing to semiconductor fabrication and pharmaceutical processing. Potential jobs include:
- Aerospace Technologists
- Associate Engineers / Application Engineers
- Automation Technologists
- Equipment / Maintenance / Service / Test Engineers
- Manufacturing / Mechanical / Product Engineers
- Process Control Engineers
- Research & Development Specialists
- Robot Coordinators
- Technical Sales Engineers

Note: Applicants should not be suffering from severe colour vision deficiency, uncontrolled epilepsy, profound hearing loss or severe vision impairment.

SUMMARY OF ENGINEERING COURSES & SPECIALISATIONS

DIPLOMA	SPECIALISATION
[T50] AEROSPACE ELECTRONICS	• Avionics Systems • CAAS-approved SAR-147 Licensed Aircraft Engineer Training • Flight Training
[T51] AEROSPACE ENGINEERING	• Airframe, Engines & Composites • CAAS-approved SAR-147 Licensed Aircraft Engineer Training • Flight Training
[T29] ARCHITECTURAL TECHNOLOGY & BUILDING SERVICES	• Building Information Modelling & Management • Digital Architecture • Environmental Sustainable Design • Green Energy Management
[T04] AVIATION MANAGEMENT	• Airline Business • Airport Management • Air Traffic Management • Flight Training & Operations
[T38] BIOMEDICAL ENGINEERING	• Audiometry & Hearing Devices • Clinical Practices • Healthcare Analytics • Medical Devices & Imaging • Medical Device Regulations
[T43] BUSINESS PROCESS & SYSTEMS ENGINEERING	• Business Processes & Analytics • Systems Engineering & Simulation
[T13] COMPUTER ENGINEERING	• Artificial Intelligence • Intelligent Automation • Internet of Things (IoT) • Virtual Reality (VR)
[T65] ELECTRONICS	• Aerospace Electronics • Applied AI & Smart Devices • Green Electronics • Robotics & Control • Semiconductor Technology
[T28] INTEGRATED FACILITY MANAGEMENT	• Project Management • Smart Facilities Management Technologies • Sustainable Facilities Management • Workplace Safety & Health Management
[T66] MECHATRONICS	• 3D Printing • Advanced Manufacturing • Machine Vision & Pattern Recognition • Robotics & Automation • Sustainability in Engineering