



# COMMON ENGINEERING PROGRAMME (T56)

## Course Overview

If you're fascinated by the world of engineering but unsure of which discipline to pursue, our Common Engineering Programme is the best fit for you. Offering the flexibility of seven courses to choose from, this programme will allow you to discover your strengths and interests as you pursue common engineering modules linked to your future course of study.

At the end of your first year, you will be ready to enrol in one of the following diplomas:

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

To download a copy of our 4-page course brochure, click [here](#).



### STRONG FOUNDATION

You will take the same foundation subjects as students who have enrolled directly in their respective diploma courses.



### PICK YOUR NICHE

You have seven diplomas to choose from.



### EXPLORE YOUR PATH

You will get to experience different engineering disciplines before you choose your specialisation.

# Entry Requirements

To be eligible for consideration for admission, applicants must obtain 26 points or better for the net ELR2B2 aggregate score (i.e. English Language, 2 relevant subjects and best 2 other subjects, including CCA Bonus Points) and meet the minimum entry requirements of this course. CCA cannot be used to meet the minimum entry requirements.

Subject	Grade
English Language (EL1)*	1-7
Mathematics (E or A)	1-6
Any one of the listed subjects^	1-6
Any two other subjects, excluding CCA	
<b>2022 Planned Intake</b>	<b>475</b>
<b>Net ELR2B2 aggregate range (2021 JAE)</b>	<b>10 - 24</b>

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

\* SPM / UEC holders must have a minimum of grade 6 for the Bahasa Ingggris (English Language) subject.

^ List of acceptable subjects: Biology, Biotechnology, Chemistry, Combined Science, Computing/Computer Studies, Design & Technology, Electronics/Fundamentals of Electronics, Physics/Engineering Science, Science (Chemistry, Biology), Science (Physics, Biology), Science (Physics, Chemistry)/Physical Science.

## What You'll Learn

YEAR 1

TPFUN

Discover Applied Science & Math. Discover how science and mathematics help to produce materials and products used in daily life. Learn fundamental principles of chemical engineering and prepare yourself for an exciting journey in this diploma.

Note: 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.

## Core Subjects

In Year 1, Semester 1, all students will go through a common curriculum, which comprises the following subjects:

Core Subjects		
Subject Code	Subject	Credit Units
EEE1001	<b>Circuit Analysis</b> This subject provides a good foundation in DC and AC network analysis. You will learn the basic principles of electric circuitry and how to apply circuit theorems to analyse DC and AC networks.	6
ESE1006	<b>Computer Programming for Problem Solving</b> This subject covers the process of decomposing a problem into a sequence of smaller abstractions. The abstractions are implemented in software in a structured top-down approach. Software implementation includes the process of designing, writing, testing, and debugging program code.	4

<b>EEE1003</b>	<b>Digital Fundamentals 1</b> This subject provides basic knowledge of digital electronics and circuits. Topics include number systems, operations and codes, logic gates, Boolean algebra and logic simplification, combinational logic, functional blocks, latches and flip-flops.	<b>5</b>	^
<b>EEE1004</b>	<b>Digital Fundamentals 2</b> This subject builds upon the fundamentals of digital electronics acquired in Digital Fundamentals 1. It introduces the digital concepts of the various building blocks in a computer's digital system. You will acquire the theoretical and practical knowledge of registers, counters, memory devices, and conversions between digital and analogue signals and integrated circuit technologies. Digital troubleshooting techniques are also explored in the laboratory work.	<b>5</b>	^
<b>EEE1002</b>	<b>Electronic Devices &amp; Circuits</b> This subject covers the theory and practical knowledge of electronic devices such as diodes, bipolar junction transistors, field effect transistors and their applications. It also focuses on the fundamentals of operational amplifiers and their applications, and the rudiments of circuit troubleshooting and testing.	<b>6</b>	^
<b>EED1001</b>	<b>Electronic Prototyping</b> This subject introduces you to the use of hand tools and standard laboratory equipment for the construction and testing of electronic prototypes. You will also learn to identify basic electronic components for project work and how to use them to build electronic devices.	<b>3</b>	^
<b>EMA1003</b>	<b>Engineering Mathematics 1</b> This subject introduces the concepts in algebra and trigonometry that are fundamental to an engineering course. Topics include expressions and equations, functions and graphs, trigonometry, complex numbers, matrices and vectors. These also constitute pre-requisite knowledge for a course in Calculus.	<b>4</b>	^
<b>EMA1002</b>	<b>Engineering Mathematics 2</b> This subject introduces the basic concepts of calculus and statistical method to test a hypothesis. Basic concepts in calculus include limits, derivatives and integrals. Applications of the derivative and integrals in engineering will be discussed. Basic statistical method in hypothesis testing includes normal distribution, confidence interval of population mean and procedure to test hypothesis for a claim made about a population mean.	<b>4</b>	^
<b>ESC1004</b>	<b>Engineering Physics</b> This subject covers a spectrum of fundamental physics laws and concepts applicable to the scope of engineering physics. It covers a few core areas including Mechanics, Energy, Thermal Physics, Electromagnetism, Waves & Optics and Materials. This subject provides a foundation for a further in depth study of the various engineering disciplines.	<b>3</b>	^

YEAR 1

**TPFUN**

You will also undergo TP Fundamentals (TPFun) – a set of subjects that equips you with the crucial life skills you need to navigate the modern world as an agile and forward-thinking individual, and team player.

#### TP Fundamentals (TPFun) Subjects

Subject Code	Subject	Credit Units	
<b>GTP1301</b>	<b>Current Issues &amp; Critical Thinking</b> This subject covers current issues, including diverse local and global concerns, that will impact lives and may have critical implications for Singapore. There will be opportunities to build competence through self-directed learning, communicate and collaborate in active discussions and objectively analyse issues using digital and information literacy skills and critical thinking scaffolds.  This subject aims to provide students with the knowledge and skills to: <ul style="list-style-type: none"> <li>• apply critical thinking tools to examine current issues.</li> <li>• effectively search for relevant information from a variety of sources.</li> </ul>	<b>3</b>	^

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ETX1001	<p><b>Effective Communication</b></p> <p>This subject introduces the fundamentals of effective communication. It also covers how to communicate with and convince an audience through writing and speaking tasks. The skills in this subject will include the application of strategies for communication, appropriate vocabulary, language features, visual aids, tone and style. The <b>Message, Audience, Purpose and Strategy (MAPS)</b> framework will also be applied when planning and engaging in written and verbal communication. There will be opportunities to communicate and collaborate through active learning activities, apply digital and information literacy skills and build competence through self-directed learning.</p> <p>This subject aims to equip students with the knowledge and skills to:</p> <ul style="list-style-type: none"> <li>• apply the factors that influence effective communication.</li> <li>• structure a compelling point of view through a writing task.</li> <li>• express their ideas convincingly to an audience in an oral presentation.</li> </ul>	3
ETX1002	<p><b>Professional Communication</b></p> <p>This subject covers professional communication skills for the workplace and employability skills in the areas of career preparation. It covers communication and interpersonal skills, including effective virtual communication etiquette, and conducting oneself professionally in the workplace. In addition, essential career preparation skills such as resume writing and interview skills, needed to seek and secure work would be included. The <b>Message, Audience, Purpose and Strategy (MAPS)</b> framework would also be applied when engaging in written and verbal communication. There will be opportunities to communicate and collaborate through active learning activities, apply digital and information literacy skills and build competence through self-directed learning.</p> <p>The subject aims to equip students with the knowledge and skills to:</p> <ul style="list-style-type: none"> <li>• communicate effectively in the workplace using principles of effective written communication and interpersonal skills.</li> <li>• apply effective job search and interview skills in their career preparation.</li> </ul>	3
GTP1101	<p><b>Leadership Fundamentals</b></p> <p>This subject focuses on self-leadership based on the values of integrity, respect, and responsibility. Increasing awareness of self and others will lay the foundations for personal and relationship effectiveness. Consequential thinking, clear articulation of personal values and visions, emphatic listening, and collaboration in serving others are some of the essential skills covered in this leadership journey. There will be opportunities to build and to apply the concepts of being a values-centred leader.</p> <p>The aim of this subject is to guide students to:</p> <ul style="list-style-type: none"> <li>• design a personal growth plan based on strengths, values and purpose.</li> <li>• apply the attributes of logical and emotional intelligence to improve team effectiveness.</li> </ul>	2

- identify the key messages of respect in relationships.
- apply the principles of effective personal financial management.

<b>GTP1102</b>	<b>Leadership in Action</b>	<b>1</b>	^
<p>This subject focuses on Service Learning as an experiential platform to apply the tenets of Self and Team Leadership. Service Learning will be the capstone project for this subject, which will require an analysis of the diverse needs of the community, collaboration with community partners and demonstration of learning, including key elements of empathy. There will be opportunities to build and to apply the concepts of being a values-centred leader.</p>			
<p>This subject aims to equip students with the knowledge and skills to:</p>			
<ul style="list-style-type: none"> <li>• plan and carry out a project to demonstrate empathy towards people in a diverse community.</li> <li>• apply diploma core knowledge and skills through the Service Learning platform to address community needs.</li> <li>• reflect on the Service Learning experience when working in teams and with community partners.</li> </ul>			
<b>GTP1201</b>	<b>Career Readiness CARE1</b>	<b>1</b>	^
<p>This subject focuses on personal management skills. It develops an understanding of one's career interests, values, personality and skills for career success. It covers the necessary knowledge, skills and attitudes needed to succeed in the workplace and achieve professional goals. There will be exposure to apply digital and information literacy skills, build competence through self-directed learning methods and acquire the skills of being a lifelong learner.</p>			
<p>This subject aims to equip students with the knowledge and skills to:</p>			
<ul style="list-style-type: none"> <li>• analyse personal characteristics that can contribute positively to achieving personal, educational and career goals.</li> <li>• make career decisions that are aligned with their interests, skills and values.</li> </ul>			
<b>GTP1202</b>	<b>Career Readiness CARE2</b>	<b>1</b>	^
<p>This subject focuses on career management skills. It covers the importance of workplace readiness skills to adapt and respond to the changing job market environment. Career ownership and continuous learning for lifelong employability will be emphasised. There will be exposure to apply digital and information literacy skills, build competence through self-directed learning, and acquire the skills of being a lifelong learner.</p>			
<p>This subject aims to equip students with the knowledge and skills to:</p>			
<ul style="list-style-type: none"> <li>• identify their work profiles to help them in their career choices in a changing job market environment.</li> <li>• take career ownership for continuous learning and lifelong employability.</li> </ul>			
<b>LSW1002</b>	<b>Sports &amp; Wellness</b>	<b>2</b>	^
<p>The subject enables students to build a good foundation for healthy living. Students will have the opportunity to participate in hands-on practical sessions where they will experience and develop both physical and technical skills in their chosen sports or fitness activities. Through a structured curriculum that facilitates group participation, practice sessions and mini competitions, students will be able to build lifelong skills such as resilience, leadership, communication and teamwork. Physical activity sessions will also be supplemented by health-related topics that span the dimensions of health, such as diet, nutrition, stress and weight management, to provide students with a holistic approach to healthy living. This subject also prepares students to be self-directed and accountable for lifelong learning for good health.</p>			
<b>EIN1001</b>	<b>Innovation &amp; Entrepreneurship</b>	<b>2</b>	^
<p>The subject is designed for learners from all disciplines to embrace innovation in either their specialised field or beyond. Learners will be taught to apply the Design Thinking framework to develop problem statements, ideate and identify feasible solutions. Learners will be exposed to several tools for prototyping. In addition, commercial awareness will be imbued in learners through various innovation and entrepreneurship concepts or tools. This subject also prepares students to be self-directed lifelong learners who are digital and information literate. It nurtures communicative and collaborative citizens who can use objective analysis in problem-solving.</p>			
<b>EGS1002</b>	<b>Global Studies</b>	<b>3</b>	^
<p>This subject provides essential skills and knowledge to prepare students for an overseas experience. They will examine the elements of culture and learn the key principles of cross-</p>			

cultural communication. In addition, they will gain an appreciation and awareness of the political, economic, technological and social landscape to function effectively in a global environment. The subject prepares students to be responsible citizens and leaders who can contribute to the global community through effective communication and collaboration.

<b>EGS1003</b>	<b>Managing Diversity at Work*</b>	<b>3</b>	
<p>This subject explores the concepts of identity, diversity and inclusion at the workplace. It examines the relationship between identity and diversity, the benefits and challenges of diversity and the strategies that promote inclusion and inspire collaboration in a diverse workplace. Examples of the elements of diversity covered in this subject include nationality, generation, ethnicity and gender. The subject prepares students to be responsible citizens and leaders who can contribute to the global community through effective communication and collaboration.</p>			
<b>EGS1004</b>	<b>Global Citizenship &amp; Community Development*</b>	<b>3</b>	
<p>Students will examine the meaning and responsibilities of being a Global Citizen, in order to contribute towards a more equitable and sustainable world. In addition, students will learn how sustainable solutions can support community development, and, execute and critique a community action plan that addresses the needs of a specific community/cause. The subject prepares students to be responsible citizens and leaders who can contribute to the global community through effective communication and collaboration.</p>			
<b>EGS1005</b>	<b>Expressions of Culture*</b>	<b>3</b>	
<p>This subject provides a platform for an understanding of culture and heritage through modes of expression. Students will be introduced to global and local cultures via everyday objects, places and human behaviour seen through time and space. Students will explore issues and challenges in culture and heritage sustainability in community, national and global contexts. The subject prepares students to be responsible citizens and leaders who can contribute to the global community through effective communication and collaboration.</p>			
<b>GTP1302</b>	<b>Guided Learning</b>	<b>3</b>	
<p>The subject introduces students to the concepts and process of self-directed learning in a chosen area of inquiry. The process focusses on four stages: planning, performing, monitoring and reflecting. Students get to plan their individual learning project, refine and execute the learning plan, as well as monitor and reflect on their learning progress and project. The learning will be captured and showcased through a curated portfolio. The self-directed learning project will broaden and/or deepen a student's knowledge and skills. Students will enhance their problem solving and digital literacy skills through this subject.</p>			
<b>ESI3001</b>	<b>Student Internship Programme</b>	<b>12</b>	
<p>This structured programme is designed to link your learning with the real work environment. You will be placed in organisation(s) with opportunities to apply the concepts and skills acquired in the course of your study. Besides reinforcing technical concepts and mastering of skills in areas that you have been trained, the practical training will enable you to build important skills such as problem-solving, communication, teamwork, and to cultivate good attitude and a strong work ethic.</p>			

\*Students must choose one of these three electives under the 'Global Studies 2' subject, or take 'Guided Learning'

## Graduation Requirements

All students who enrol through this common programme will graduate with the same diploma as those who had joined a particular diploma right from the start. They will be subject to the graduation requirements of the respective diplomas into which they have been streamed.

Please refer to the respective diploma websites for more information:

- [Diploma in Aerospace Electronics](#)
- [Diploma in Aerospace Engineering](#)
- [Diploma in Biomedical Engineering](#)
- [Diploma in Business Process & Systems Engineering](#)
- [Diploma in Clean Energy](#)
- [Diploma in Computer Engineering](#)
- [Diploma in Electronics](#)
- [Diploma in Mechatronics](#)

