COMMON ENGINEERING PROGRAMME (T56)

Course Overview

Are you an aspiring engineer but are unsure of which engineering discipline to pursue? Our Common Engineering Programme is perfect for you.

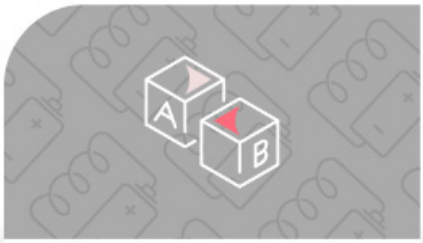
This programme is a common entry point to seven different engineering diploma courses, where you will take the same foundation subjects as students who have enrolled directly in their respective diploma courses.

This gives you the time to explore your strengths and interests across different engineering domains to discover your preferred industry before deciding on which course to pursue. With this experience, you will then be ready to choose from the seven different diplomas offered to you at the end of your first year.

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

Depending on your specialisation, this course will open up a wide range of career opportunities, including aerospace, computer and IT, biomedical sciences, and even outside the engineering sphere. Step into the world of engineering with our Common Engineering Programme today!

To download a copy of our 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	
2023 Planned Intake	**465**
Net ELR2B2 aggregate range (2023 JAE)	**8 - 21**

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 Inggeris (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	**Circuit Analysis** 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	**Computer Programming for Problem Solving** 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
EEE1003	**Digital Fundamentals 1** 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.	5

EEE1004	**Digital Fundamentals 2** 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.	**5**	^
EEE1002	**Electronic Devices & Circuits** 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.	**6**	^
EED1001	**Electronic Prototyping** 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.	**3**	^
EMA1003	**Engineering Mathematics 1** 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.	**4**	^
EMA1002	**Engineering Mathematics 2** This subject introduces the basic	**4**	^

	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.		
ESC1004	**Engineering Physics** 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.	**3**	^

What You'll Learn

YEAR 1 | TPFUN

You will also take this set of subjects that equips you with the crucial 21st-Century life skills you need to navigate the modern world as an agile, forward-thinking individual and team player.

TP Fundamentals (TPFun) Subjects —

Subject Code	Subject	Credit Units	
ESI3001	**Student Internship Programme** 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	**12**	^

	cultivate good attitude and a strong work ethic.		
ETX1001	**Effective Communication** 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 **M**essage, **A**udience, **P**urpose and **S**trategy (MAPS) 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.	**3**	
ETX1002	**Professional Communication** 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 **M**essage, **A**udience, **P**urpose and **S**trategy (MAPS) 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.	**3**	
GTP1301	**Current Issues & Critical Thinking**	**3**	

	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.		
GTP1201	**Career Readiness** 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.	**1**	^
GTP1202	**Career Management** 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.	**1**	^
EGS1002	**Global Studies** 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-cultural communication. In addition, they will gain an appreciation and	**3**	^

	awareness of the political, economic, technological and social landscape to function effectively in a global environment. The subject prepares students to be responsible global citizens and leaders who can contribute to the global community through effective communication and collaboration.		
GTP1302	**Guided Learning***	**3**	^
	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.		
EIN1001	**Innovation & Entrepreneurship**	**2**	^
	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.		

GTP1101	**Leadership Fundamentals** 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.	**2**	^
GTP1102	**Leadership in Action** 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.	**1**	^
LSW1002	**Sports & Wellness** 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	**2**	^

	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.		
TGS1001	**Sustainability & Climate Action***	**3**	^
	This subject prepares students to be responsible global citizens and future leaders who can contribute to the global community. It introduces the topics of sustainability and explores how human societies can act to build a sustainable future. This subject focuses on the impact of climate change, potential solutions to climate change, and the future of the green economy from global and local perspectives.		

** Students must choose to take either **Sustainability & Climate Action** or **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 Computer Engineering
- Diploma in Electronics
- Diploma in Mechatronics