Engineer — an architect of the future who thinks innovatively and creates possibilities. The School of Engineering (SEG) prepares you to be a person involved in shaping society’s progress with technology such as robotics, machine learning, cloud computing and the Internet. Today’s world is shaped by infrastructure and tools — all created, developed, maintained, managed, serviced and upgraded by engineers. Skilled engineers are constantly in demand and there is no shortage of career opportunities for SEG graduates. With robust industry connections, a highly qualified teaching faculty and state-of-the-art facilities, SEG provides you with the most forward and relevant training, giving you ample opportunities for further studies, diverse career choices and attractive salaries.

EXTENSIVE LEARNING EXPERIENCE
SEG has a broad spectrum of diploma courses in the fields of engineering and infocommunications. You can choose one of these two paths:
1. Enrol directly into your preferred engineering field of study.
2. Gain a strong engineering foundation via the three programmes before selecting your course.

Our curriculum will provide you with in-depth knowledge and hands-on expertise that are aligned to industry needs. Increase your knowledge through an internship with a local or overseas company and through participating in the many collaborative projects between NYP and its industry partners.

INDUSTRY PARTNERS
3M, Cisco Systems, GF Machining Solutions, Hewlett-Packard Enterprise, IBM, Intel, Microsoft, National Instruments, Rolls-Royce, Samsung, Siemens, Symantec, Zeiss and many others.

CENTRES OF EXCELLENCE
Our in-campus facilities serve to boost the learning experiences of our students:

• Aerospace Hub
A comprehensive learning hub for students to build, repair and maintain a plane or experience the thrill of flying one in a flight simulator. Our laboratories are equipped with state-of-the-art aeronautical and avionics training systems that students can try their hands at and accumulate experience in aerospace technology.

• The Internet of Things (IoT) Open Innovation Lab
A space for innovators, solution providers and pilot users to tap on technology platforms and test their end-to-end IoT solutions. Our IoT Open Innovation Community brings together enterprises, technology partners, research and knowledge institutions, and relevant industry catalysts to explore, experiment, collaborate, and exploit the potential of IoT for new business innovation in opportunities and growth. This innovation space also aims to inspire students to explore and develop IoT solutions for real-world problems.

WHY CHOOSE SEG?
Learn from industry-experienced lecturers to solve real-life engineering challenges, gain global exposure and be ready for a future career in the industry.
Enhance your knowledge and skills in in-demand technology through a real-world training environment and prepare to partake in the development of smart cities and innovation around the world.
Accelerate your career and study opportunities through internship programmes and collaborative projects with our long-standing partners, including universities, government agencies and leading global companies.
Discover and realise your potential through innovation competitions, fun-filled learning and student life experiences.
Unsure of which engineering discipline you should pursue? The Common Engineering Programme is the perfect answer if you are keen on an engineering career. Designed to improve your grasp of engineering fundamentals and involve you in engineering design and implementation at a very early stage, this programme introduces you to a variety of engineering disciplines over one semester. You will apply and integrate knowledge from different engineering modules, as well as experience various types of engineering through practical projects. In addition, you will be exposed to various engineering industries.

WHY THIS PROGRAMME?
• Gain a good foundation in the fundamentals of engineering.
• You will experience the breadth of our engineering courses before deciding what is most suitable for you.
• Get a good overview of the diversity of engineering to help you identify your career choice.

IT WILL ENABLE YOU TO...
• Benefit from a widened perspective on engineering disciplines.
• Gain exposure to a broad spectrum of industry standards and demands.
• Embark on your chosen engineering course and engineering career with confidence.

DURATION
Half a year. Students will be streamed into a diploma course for the following two and a half years.

FURTHER EDUCATION
Please refer to the corresponding section of the diplomas you are interested in pursuing.

CAREER PROSPECTS
Please refer to the corresponding section of the diplomas you are interested in pursuing.

ENTRY REQUIREMENTS*
You must have obtained the following minimum GCE O Level results:
• English Language (EL1) Grade 1–7
• Elementary/Additional Mathematics Grade 1–6
• A Science subject Grade 1–6

* Please refer to the section on entry requirements for diploma courses for more details.

To complete 30 hours for General Studies Modules with the aim of promoting a holistic education and learning experience. Choose modules from clusters that include foreign languages, communication and interpersonal skills, leadership and teamwork, values and society, general knowledge and interests, and healthy and active lifestyle.

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COURSE STRUCTURE

YEAR 1 – SEMESTER 1
Core Modules
EG1831 Introduction to Engineering
EG1832 Mechanics and Materials
EG1833 Electrical Principles
EG1834 Computer Programming
EG1835 Engineering Mathematics 1A
EG1836 Communication Skills

GENERAL STUDIES*
Please refer to the section on entry requirements for diploma courses for more details.

* To complete 30 hours for General Studies Modules with the aim of promoting a holistic education and learning experience. Choose modules from clusters that include foreign languages, communication and interpersonal skills, leadership and teamwork, values and society, general knowledge and interests, and healthy and active lifestyle.
Are you fascinated by aircraft and robots? This programme is specially designed to give you a head start in the aerospace and robotics worlds. It will give you a strong grounding in the interdisciplinary fields of aerospace engineering and mechatronics engineering. You will also have a good understanding of the meaningful integration of mechanical, electrical and computer engineering theories, as well as the techniques behind the creation of smart devices and robots.

In addition, this programme will enable you to acquire knowledge of aerospace manufacturing technology, which will prepare you to take off in the aerospace industry.

WHY THIS PROGRAMME?
• Get a head start in an exciting trio of studies in aerospace, electrical and electronics engineering.
• Explore and ascertain your interests and strengths with more time, exposure and information provided.

IT WILL ENABLE YOU TO...
• Broaden your perspectives and identify your strengths and interests as an electrical, electronics or avionics engineer, with career options spanning a wide spectrum of industries such as aerospace, defence, microelectronics, smart connected systems, telecommunications, audio visual systems, power and green technologies.
• Make a better and more informed decision towards the end of the first semester in Year 1 on which of the three diploma courses to pursue.

DURATION
Half a year. Students will be streamed into a diploma course for the following two and a half years.

FURTHER EDUCATION
Please refer to the corresponding section of the diplomas you are interested in pursuing.

CAREER PROSPECTS
Please refer to the corresponding section of the diplomas you are interested in pursuing.

ENTRY REQUIREMENTS*
You must have obtained the following minimum GCE O Level results:
• English Language (EL1) Grade 1–7
• Elementary/Additional Mathematics Grade 1–6
• A Science subject Grade 1–6

*Please refer to the section on entry requirements for diploma courses for more details.

To complete 30 hours for General Studies Modules with the aim of promoting a holistic education and learning experience. Choose modules from clusters that include foreign languages, communication and interpersonal skills, leadership and teamwork, values and society, general knowledge and interests, and healthy and active lifestyle.
Fuel your passion for both aerospace and robotics with this one-year programme. Get the best of both worlds as you gain not only knowledge of aerospace manufacturing technology that will help you take off in the aerospace industry, but also mechanical, electronics and computer engineering theories and techniques that are integrated into the design of automated products/control systems. Your learning experience will be complemented by our advanced facilities and equipment for practical applications. With strong fundamentals and a good perspective, you can scale greater heights from Year 2 in your chosen engineering path – either in the Diploma in Aeronautical & Aerospace Technology or the Diploma in Robotics & Mechatronics from Year 2. Enjoy two brilliant options from a single programme and open up infinite career prospects in diverse fields, including aerospace, biomedical and robotics.

WHY THIS PROGRAMME?
• Gain a strong foundation in aerospace technology and the multidisciplinary field of mechatronics engineering through interactive and stimulating learning sessions.
• Ascertain your interests and strengths with more time and exposure given.
• A choice of CAREER options in a variety of fields such as aerospace, biomedical, robotics, defence and automotive.

IT WILL ENABLE YOU TO...
• Focus on two promising course options.
• Make an informed decision on whether to pursue either the Diploma in Aeronautical & Aerospace Technology or the Diploma in Robotics & Mechatronics from Year 2.
• Choose the Aerospace Technology Elective in your final year of study even if you are pursuing the Diploma in Robotics & Mechatronics.

DURATION
One year on a full-time basis.

WHY THIS PROGRAMME?

FURTHER EDUCATION
Please refer to the corresponding section of the diplomas you are interested in pursuing.

CAREER PROSPECTS
Please refer to the corresponding section of the diplomas you are interested in pursuing.

ENTRY REQUIREMENTS*
You must have obtained the following minimum GCE O Level results:
• English Language (EL1) Grade 1–7
• Elementary/Additional Mathematics Grade 1–6
• A Science subject Grade 1–6

COURSE STRUCTURE
YEAR 1 – SEMESTERS 1 & 2
Core Modules
EG1881 Engineering Mathematics 1A
EG1882 Engineering Mechanics 1
EG1883 Electrical Principles and Circuits
EG1884 Computer Programming
EG1885 Introduction to Engineering
EG1886 Communication Skills
EG1887 Engineering Mathematics 1B
EG1888 Aerospace Manufacturing Technology
EG1889 Analogue & Digital Electronics
EG1890 Engineering Drawing & Modelling
EG1891 Materials Technology
EG1892 Semester Project 2
General Studies*

FROM YEAR 2 – SEMESTER 1
Choose one of the following courses:
• Diploma in Aeronautical & Aerospace Technology
• Diploma in Robotics & Mechatronics

* Please refer to the section on entry requirements for diploma courses for more details.

* To complete 60 hours for General Studies Modules with the aim of promoting a holistic education and learning experience. Choose modules from clusters that include foreign languages, communication and interpersonal skills, leadership and teamwork, values and society, general knowledge and interests, and healthy and active lifestyle.

AEROSPACE/MECHATRONICS PROGRAMME

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Be a versatile technologist conversant in all aspects of aerospace technology such as aerospace manufacturing processes, composite materials, and aerospace design, analysis and testing. The Diploma in Aeronautical & Aerospace Technology course prepares you for the fast-paced and cutting-edge aerospace industry by providing you with a solid foundation in current and emerging technologies and practices in the industry.

With major aerospace companies setting up base here, and with Singapore growing as a key regional centre for maintenance, repair and overhaul (MRO), your training will lead to abundant career opportunities upon graduation.

This course is the first in Singapore to be accredited by the Engineering Technology Accreditation Commission of ABET, a worldwide leader in assuring quality and stimulating innovation in applied science, computing, engineering and engineering technology education.

WHY THIS DIPLOMA?
• Gain broad-based training in this hybrid programme covering aerospace MRO and aerospace manufacturing.
• Get technological knowledge and know-how to support the manufacturing and repair needs of new-generation aircraft.
• Be primed for employment in the aerospace MRO and aerospace manufacturing industries.
• With ABET accreditation, students can be assured that:
  - SEG is committed to improving their educational experience.
  - SEG is committed to using best practices and innovation in education.
  - The course is guided by its industry, government and academic constituents through formal feedback.
  - The course considers the students’ perspective as part of its continuous quality improvement process.

IT WILL ENABLE YOU TO…
• Design, develop and implement solutions for aviation applications.
• Lead, collaborate and communicate with multidisciplinary teams.
• Contribute to innovation and partake in enterprising endeavours.
• Anticipate the welfare and safety needs of the public.
• Enter the aviation industry or a related field, or be accepted into related undergraduate and/or professional training programmes.

DURATION
Three academic years on a full-time basis.

FURTHER EDUCATION
You can pursue further studies in varied engineering disciplines at reputable universities in Singapore and overseas. As this is an ABET-accredited course, our graduates have added advantage when applying for further studies in the US.

CAREER PROSPECTS
You will be well-equipped to embark on careers that involve the design and development of aircraft components, as well as in aircraft maintenance, manufacturing, quality control, testing, advanced materials and planning. Opportunities in specific industry sectors include:
• Aerospace manufacturing
• Maintenance, repair & overhaul
• Engine maintenance, repair, overhaul & testing
• Advanced aerospace & composites materials
• Non-destructive inspection/testing of airframes & aircraft components
• Quality assurance of aircraft components
• Aircraft fleet & logistics management

Upon further specialised training and practical experience in operating aircraft, you will have the opportunity to be certified by the Civil Aviation Authority of Singapore (CAAS) as a Licensed Aircraft Maintenance Engineer (LAE).

ENTRY REQUIREMENTS
You must have obtained the following minimum GCE O Level results:
• English Language (EL1) Grade 1–7
• Elementary/Additional Mathematics Grade 1–6
• A Science subject Grade 1–6

*Please refer to the section on entry requirements for diploma courses for more details.
# COURSE STRUCTURE

## YEAR 1 – SEMESTERS 1 & 2

<table>
<thead>
<tr>
<th>Core Modules</th>
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<tbody>
<tr>
<td>EGF101 Engineering Mathematics 1A</td>
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<tr>
<td>EGF102 Engineering Mechanics 1</td>
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<tr>
<td>EGF103 Aerospace Manufacturing Technology</td>
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<tr>
<td>EGF105 Materials Technology</td>
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<tr>
<td>EGF107 Engineering Mathematics 1B</td>
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<tr>
<td>EGF108 Electrical Principles &amp; Circuits</td>
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<tr>
<td>EGF109 Analogue &amp; Digital Electronics</td>
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<tr>
<td>EGF110 Communication Skills</td>
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<tr>
<td>EGF111 Computer Programming</td>
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<tr>
<td>EGF112 Introduction to Engineering</td>
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<tr>
<td>EGF113 Engineering Drawing &amp; Modelling</td>
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<td>EGF116 Workshop Practices</td>
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</tbody>
</table>

**General Studies**

*Please refer to the section on entry requirements for diploma courses for more details.*

## YEAR 2 – SEMESTERS 1 & 2

<table>
<thead>
<tr>
<th>Core Modules</th>
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<tbody>
<tr>
<td>EGF201 Engineering Mathematics 2A</td>
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<tr>
<td>EGF202 Aeronautical Science</td>
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<tr>
<td>EGF203 Engineering Mechanics 2</td>
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<tr>
<td>EGF207 Engineering Mathematics 2B</td>
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<tr>
<td>EGF208 Mechanical Design</td>
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<td>EGF209 Thermofluids</td>
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<tr>
<td>EGF210 Metrology &amp; Quality Control</td>
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<tr>
<td>EGF211 Aircraft Propulsion System</td>
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<tr>
<td>EGF214 Aero-Structures</td>
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<td>EGF215 Computer Aided Design &amp; Manufacturing</td>
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<td>EGF216 Aero-Systems</td>
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<tr>
<td>EGF217 Aviation Legislation &amp; Human Factors</td>
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</tbody>
</table>

**General Studies**

*To complete 60 hours and 30 hours of General Studies Modules in Year 1 & 2, and Year 3 respectively, with the aim of promoting a holistic education and learning experience. Choose modules from clusters that include foreign languages, communication and interpersonal skills, leadership and teamwork, values and society, general knowledge and interests, and healthy and active lifestyle.*

## YEAR 3 – SEMESTERS 1 & 2

**Elective Programmes (Select one)**

<table>
<thead>
<tr>
<th>Aerospace Systems &amp; Testing</th>
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<tbody>
<tr>
<td>EGF305 Aerospace Material &amp; NDT Technology</td>
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<tr>
<td>EGF302 Aircraft Component &amp; Fixture Design</td>
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<tr>
<td>EGF303 Professional &amp; Interpersonal Communication Skills</td>
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<tr>
<td>EGF312 Aero Maintenance Practices &amp; Projects</td>
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<tr>
<td>EGF324 Full-Time Semester Project**</td>
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</table>

**Internship**

<table>
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<tr>
<th>Elective Modules</th>
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<tbody>
<tr>
<td>EGF306 Reliability &amp; Failure Analysis</td>
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<tr>
<td>EGF313 Computational Analysis and Simulation</td>
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<table>
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<tr>
<th>Aerospace Manufacturing</th>
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<tbody>
<tr>
<td>EGF304 Professional &amp; Interpersonal Communication Skills</td>
</tr>
<tr>
<td>EGF312 Aero Maintenance Practices &amp; Projects</td>
</tr>
<tr>
<td>EGF314 Advanced Metrology &amp; Quality Management</td>
</tr>
<tr>
<td>EGF316 Aero-Systems</td>
</tr>
</tbody>
</table>

**General Studies**

*Students taking EGF325 or EGF326 would not need to do EGF324.*

*Internship (Choose one)*

| EGF323 Internship Programme (12 weeks) |
| EGF325 Internship Programme (24 weeks) |
| EGF326 Overseas Internship Programme |

Prepare yourself for an exciting career in Singapore’s fast-growing aerospace and aviation industries. This course puts you in good stead by giving you an in-depth understanding of modern aircraft systems. You will learn about avionics systems with our state-of-the-art facilities, which include various flight simulator systems and aerospace systems. You will also learn to manage and operate world-class aviation services, airports and facilities. There are ample opportunities to sharpen your technical skills through internships at leading aerospace and aviation companies.

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*DIPLOMA IN AEROSPACE SYSTEMS & MANAGEMENT*
WHY THIS DIPLOMA?

• Gain career opportunities in engineering and management roles in a wide spectrum of aviation activities.
• Learn with the latest aerospace training systems and facilities, including the A320 flight simulator.
• Participate in exciting events and site visits such as air shows, the Aviation Open House and Singapore Youth Flying Club.

IT WILL ENABLE YOU TO...

• Develop expertise in aerospace avionics systems for engineering careers in the aerospace industry.
• Be groomed for management careers in the aviation management and services sector.
• Explore further education through local and overseas university programmes.

DURATION

Three academic years on a full-time basis.

FURTHER EDUCATION

You can pursue further studies at reputable universities in Singapore and overseas such as the Queensland University of Technology, University of New South Wales, University of Glasgow and Embry-Riddle Aeronautical University.

CAREER PROSPECTS

You can look forward to exciting and rewarding careers as aerospace/aviation professionals in many industry sectors such as:

• Avionics Systems Development
• Aerospace Maintenance, Repair & Overhaul (MRO)
• Aircraft Electrical, Navigation, Communication & Instrument Systems Testing
• Avionics Manufacturing
• Aviation Services & Management
• Fleet Management
• Logistics Management

Upon further specialised training and practical experience in operating aircraft, graduates will have the opportunity to become Licensed Aircraft Engineers (LAE) by obtaining the Aircraft Maintenance Licence (Category B2 – Avionics) issued by the Civil Aviation Authority of Singapore (CAAS).

ENTRY REQUIREMENTS*

You must have obtained the following minimum GCE O-Level results:

• English Language (EL1) Grade 1–7
• Elementary/Additional Mathematics Grade 1–6
• A Science subject Grade 1–6

* Please refer to the section on entry requirements for diploma courses for more details.

COURSE STRUCTURE

YEAR 1 – SEMESTERS 1 & 2

Core Modules

EG1901 Aerospace Physics
EG1903 Electrical Fundamentals
EG1904 Analog Circuits
EG1907 Engineering Mathematics 1A
EG1908 Communication Skills 1
EG1909 Introduction to Management
EG1911 Fundamentals of Flight
EG1912 Circuit Analysis
EG1913 Digital Circuits
EG1917 Engineering Mathematics 1B
EG1920 Aircraft Materials & Structures
EG1921 Computer Programming
EG1923 Introduction to Engineering

General Studies*

YEAR 2 – SEMESTERS 1 & 2

Core Modules

EG2901 Aircraft Electrical Systems
EG2903 Aerospace Operation and Practices
EG2904 Microprocessor Systems
EG2907 Engineering Mathematics 2A
EG2908 Communication Skills 2
EG2909 Introduction to Operations Management
EG2911 Aircraft Electronic Systems
EG2912 Radio Communications
EG2913 Electronic Circuits & Systems
EG2916 Engineering Mathematics 2B
EG2920 Innovation & Entrepreneurship
EG2923 Aerospace Systems Project
EG2924 Airport Operations

General Studies*

YEAR 3 – SEMESTERS 1 & 2

Core Modules

EG3901 Aircraft Communication and Navigation Systems
EG3902 Aircraft Instrument Systems
EG3905 Quality Management System
EG3909 Professional & Interpersonal Communication Skills
EG3910 Aviation Management
EG3911 Human Factors
EG3932 Full-Time Semestral Project**

General Studies*

Internship#

Elective Modules (Choose one)

EG3921 Aerospace Supply Chain Management
EG3924 Aircraft Cabin and Information Systems
EG3925 Unmanned Aerial Systems

* To complete 60 hours for General Studies Modules with the aim of promoting a holistic education and learning experience. Choose modules from clusters that include foreign languages, communication and interpersonal skills, leadership and teamwork, values and society, general knowledge and interests, and healthy and active lifestyle.

** Students taking EG3931 or EG3934 would not need to do EG3932.

# Internship (Choose one)

EG3901 Internship Programme (24 weeks)
EG3903 Internship Programme (12 weeks)
EG3904 Overseas Internship Programme
You can save lives as a biomedical engineer by sharpening the tools vital to the medical profession. In this course, you will first learn to design, develop and produce medical devices and instruments that match the needs of the industry. After grasping the fundamentals, you can choose to specialise in biomedical device design, quality system and regulatory compliance, or biomedical manufacturing processes and technology.

Upon graduation, you will be a technically competent, innovative and adaptable individual ready for a successful career in the expanding biomedical and healthcare sectors.

WHY THIS DIPLOMA?
• Get practical and hands-on training with the latest engineering design tools, software, and advanced medical and biomedical systems and processes.
• Experience real-life, industry-based medical device design and development projects.
• Gain international exposure and experience through our Overseas Internship Programmes in countries such as Australia, Canada, France, the UK and Japan.
• Be eligible for the Diploma Plus Programme, which prepares you for university studies, professional certifications and enhancements of your technical capabilities.

IT WILL ENABLE YOU TO...
• Become competent in the latest technologies for current and emerging biomedical needs.
• Design and develop medical devices and instruments.
• Provide support for medical technology companies, healthcare companies and research institutions.
• Enjoy advanced standing in Bioengineering or Biomedical Engineering Degree Programmes at local and overseas universities.

DURATION
Three academic years on a full-time basis.

FURTHER EDUCATION
You get advanced standing or module exemptions for relevant or equivalent degree programmes at many reputable universities in Singapore and abroad such as the University of Sheffield, Queen Mary University of London, Newcastle University, University of Manchester, University of New South Wales, Monash University and University of Sydney.

CAREER PROSPECTS
You will be highly sought-after in the biomedical and healthcare industries. You can expect to enjoy a dynamic and rewarding career with industry leaders, or join an academic or research institute, in positions such as:
• Medical product designer
• Assistant quality assurance engineer
• Assistant regulatory affairs officer
• Assistant GMP facilities & equipment engineer
• R&D technologist
• Research assistant

You can also enter the industry directly as an entrepreneur.

ENTRY REQUIREMENTS*
You must have obtained the following minimum GCE O Level results:
• English Language (EL1) Grade 1–7
• Elementary/Additional Mathematics Grade 1–6
• A Science subject Grade 1–6

ENTRY REQUIREMENTS*
You must have obtained the following minimum GCE O Level results:
• English Language (EL1) Grade 1–7
• Elementary/Additional Mathematics Grade 1–6
• A Science subject Grade 1–6

* Please refer to the section on entry requirements for diploma courses for more details.
COURSE STRUCTURE

YEAR 1 – SEMESTERS 1 & 2
Core Modules
EGH101 Mathematics 1A
EGH103 Electrical Principles and Circuits
EGH104 Biomedical Modelling
EGH105 Communication Skills
EGH106 Applied Physics
EGH107 Mathematics II
EGH108 Inorganic & Physical Chemistry
EGH109 Biomedical Engineering Mechanics
EGH110 Biomaterials 1
EGH111 Computer Programming
EGH113 Introduction to Engineering
EGH114 Introduction to Biomedical Manufacturing Processes

General Studies*  

YEAR 2 – SEMESTERS 1 & 2
Core Modules
EGH201 Mathematics 2A
EGH202 Anatomy & Physiology
EGH203 Biomedical Engineering Design
EGH205 Microcontroller Applications
EGH206 Biomedical Project 1
EGH207 Mathematics 2B
EGH208 Biomedical Electronics
EGH209 Thermofluids
EGH212 Biomedical Project 2
EGH216 Good Manufacturing Practice

General Studies*

Elective Modules (Choose two)
EGH204 Organic Chemistry
EGH210 Biomaterials 2
EGH211 Medical Imaging
EGH215 Automatic Control

YEAR 3 – SEMESTERS 1 & 2
Core Modules
EGH301 Medical Device Design
EGH302 Medical Device Design
EGH303 Biomedical Project 3
EGH304 Professional & Interpersonal Communication Skills
EGH312 Healthcare Analytics

Biomedical Manufacturing Processes & Technology
Core Modules
EGH303 Biomedical Project 3
EGH304 Professional & Interpersonal Communication Skills
EGH310 Biomedical Manufacturing Technology
EGH314 Automation Control Technology
EGH324 Full-Time Semestral Project**

General Studies*

Internship#

Elective Modules (Choose two)
EGH305 Medical Device Validation
EGH306 Biosignal Processing & Analysis
EGH308 Diagnostic Image Processing & Visualisation
EGH312 Healthcare Analytics

Quality System & Regulatory Compliance
Core Modules
EGH303 Biomedical Project 1
EGH304 Professional & Interpersonal Communication Skills
EGH309 Quality Management System
EGH311 Medical Device Regulatory Compliance
EGH324 Full-Time Semestral Project**

General Studies*

Internship#

* To complete 60 hours for General Studies Modules with the aim of promoting a holistic education and learning experience. Choose modules from clusters that include foreign languages, communication and interpersonal skills, leadership and teamwork, values and society, general knowledge and interests, and healthy and active lifestyle.

** Students taking EGH325 or EGH326 would not need to do EGH324.

# Internship (Choose one)  
EGH323 Internship Programme (12 weeks)
EGH325 Internship Programme (24 weeks)
EGH326 Overseas Internship Programme

To complete 60 hours for General Studies Modules with the aim of promoting a holistic education and learning experience. Choose modules from clusters that include foreign languages, communication and interpersonal skills, leadership and teamwork, values and society, general knowledge and interests, and healthy and active lifestyle.

** Students taking EGH325 or EGH326 would not need to do EGH324.

# Internship (Choose one)  
EGH323 Internship Programme (12 weeks)
EGH325 Internship Programme (24 weeks)
EGH326 Overseas Internship Programme
The modern gadgets, mobile and computing devices in our daily lives require precision in their design and manufacture, and this is what you will learn in this course. You will gain the skills necessary to manufacture specific tools and components through precision engineering, as well as train in digital manufacturing, automation and systems integration. You will also gain knowledge in the full process of product design from development to realisation, including the application of IT and digital enabling technologies for new and exciting developments in micro-systems. Upon graduation, your skills and expertise in precision engineering will offer you a range of career choices, as there is increasing demand in multiple industries for the production of biomedical, mould design, automation, and aerospace products and tools. 

WHY THIS DIPLOMA?
• Learn about and apply the latest IT- and digital-enabling technologies.
• Full sponsorship of course and monthly allowance for successful scholarship recipients.

IT WILL ENABLE YOU TO...
• Develop a strong foundation in precision engineering fundamentals, digital design and manufacturing.
• Possess knowledge and skills for digital design and engineering applications, engineering processes and process control.
• Gain industry exposure during six months of industrial attachment at a local or overseas company.

DURATION
Three academic years on a full-time basis.

FURTHER EDUCATION
You can pursue further studies with up to two years’ exemption for related undergraduate programmes at reputable universities in Singapore, Australia, the UK and the US.

CAREER PROSPECTS
You will be highly sought after in the manufacturing and precision engineering industries, and can expect a dynamic and rewarding career with industry leaders in the following areas:
• Aerospace manufacturing
• Automation & special equipment building
• Biomedical manufacturing
• Mould design & simulation
• Precision tool & component manufacturing

ENTRY REQUIREMENTS*
You must have obtained the following minimum GCE O Level results:
• English Language (EL1) Grade 1–7
• Elementary/Additional Mathematics Grade 1–6
• A Science subject Grade 1–6

Please refer to the section on entry requirements for diploma courses for more details.
YEAR 1 – SEMESTERS 1 & 2
Core Modules
EGD101 Engineering Mathematics 1A
EGD102 Engineering Mechanics 1
EGD103 Aerospace Manufacturing Technology
EGD104 Engineering Drawing/CAD
EGD105 Materials Technology
EGD106 Semestral Project 1
EGD107 Engineering Mathematics 1B
EGD108 Electronics & Electrical Principles
EGD109 Metrology & Quality Control
EGD110 Communication Skills
EGD111 Computer Programming
EGD112 Semestral Project 2
General Studies*

YEAR 2 – SEMESTERS 1 & 2
Core Modules
EGD201 Engineering Mathematics 2A
EGD202 Automation Systems
EGD203 Engineering Mechanics 2
EGD204 Manufacturing Information System
EGD205 3D Mould Design & Plastic Processes
EGD206 Semestral Project 3
EGD207 Engineering Mathematics 2B
EGD208 Mechanical & Fixture Design
EGD209 Thermofluids
EGD210 Semestral Project 4
EGD211 Quality Process Control & Management
EGD212 Manufacturing Systems & Simulation
General Studies*  

YEAR 3 – SEMESTERS 1 & 2
Core Modules
EGD302 Advanced Metrology & TQM
EGD303 Semestral Project 5
EGD304 Professional & Interpersonal Communication Skills
EGD305 Advanced CAD Modelling & Simulation
EGD324 Full-Time Semestral Project**

General Studies*

Elective Programmes (Choose one)
- Precision Tool & Component Manufacturing
  EGD305 Integrated CAM & CNC Technology
  EGD306 Product Innovation & Additive Manufacturing

Mould & Tool Design Analysis
EGD307 Advanced Plastics Processing Technology
EGD308 Advanced Mould & Tool Design

Equipment Design & Building
EGD310 Machine Elements & Mechanisms
EGD311 Automated Equipment Design

* To complete 60 hours for General Studies Modules with the aim of promoting a holistic education and learning experience. Choose modules from clusters that include foreign languages, communication and interpersonal skills, leadership and teamwork, values and society, general knowledge and interests, and healthy and active lifestyle.

** Students taking EGD325 or EGD326 would not need to do EGD324.

# Internship (Choose one)
- EGD323 Internship Programme (12 weeks)
- EGD325 Internship Programme (24 weeks)
- EGD326 Overseas Internship Programme

We live in an age where electricity enables every facet of our modern lifestyle. From the reliable and efficient infrastructure that brings electricity to where we live, work and play, to transportation that carry us around our cities, electrical systems are essential building blocks of our society. However, as we consume more energy and electricity, the conventional way of electricity production is increasingly causing adverse effects to our environment.

The Diploma in Electrical Engineering with Eco-Design course is designed from the ground up to help you to develop a solid foundation in electrical and electronic engineering that is thoroughly integrated with the principles of eco-design and sustainability. In the final year of this three-year course, you will have the option to develop further competencies in one of these areas by choosing one of our three elective programmes in power systems engineering, green and smart technologies or urban transportation systems.
WHY THIS DIPLOMA?
• Look forward to an exciting and rewarding career riding on the robust demand for skilled electrical professionals to develop, manage and maintain our electrical infrastructure in power, buildings and transportation.
• Be at the forefront of the clean and green energy revolution, develop your expertise in sustainability and green technologies by learning about smart power grids, energy-efficient systems and technologies in green buildings as well as electrification systems for urban mobility.
• Tap on the numerous scholarships/sponsorship opportunities, covering tuition fees and allowances during course of study, including those administered by Energy Market Authority (EMA), Building & Construction Authority (BCA), Land Transport Authority (LTA) and SP Group (formerly Singapore Power).
• Take advantage of our strong industry and academic links with organisations such as SP Group and Newcastle University in the UK to help secure highly sought-after internship and further study opportunities.

IT WILL ENABLE YOU TO...
• Be a competent electrical engineering technologist with eco-design know-how.
• Become convergent in clean energy, smart grids, electric vehicles, rail electrification as well as various green and sustainable technologies.
• Exploit and harness new smart technologies for energy efficiency and reduction of our carbon footprint.
• Develop innovative green and sustainable systems and solutions in industry projects.
• Gain exposure and experience through overseas internship programmes, project centre attachments and immersion programmes.

DURATION
Three academic years on a full-time basis.

FURTHER EDUCATION
You can pursue further studies with up to two years’ exemption for related undergraduate programmes at reputable universities in Singapore and overseas such as those in Australia, the UK or the US.

CAREER PROSPECTS
You can look forward to exciting and rewarding careers in the power and rail transportation sectors, as well as in the fast-growing energy market for energy efficient, eco-friendly engineering and business solutions. Opportunities abound in a wide spectrum of industries such as:
• Electrical engineering & services
• Power engineering
• Energy management
• Facility management
• Operations management
• Urban transportation
• Sustainable solutions
• Clean energy
• Research & development
• Technopreneurship & entrepreneurship

ENTRY REQUIREMENTS*
You must have obtained the following minimum GCE O Level results:
• English Language (EL1) Grade 1–7
• Elementary/Additional Mathematics Grade 1–6
• A Science subject Grade 1–6

Please refer to the section on entry requirements for diploma courses for more details.

COURSE STRUCTURE
YEAR 1 – SEMESTERS 1 & 2
Core Modules
EG1951 Engineering Mathematics 1A
EG1952 Electrical Technology
EG1953 Digital Electronics
EG1954 Electrical System & Distribution Practices
EG1956 Engineering Physics
EG1957 Communication Skills
EG1958 Introduction to Engineering
EG1961 Engineering Mathematics 1B
EG1962 AC Circuits
EG1963 Analog Electronics
EG1964 Computer & Programming
EG1967 Thinking & Problem Solving Skills
General Studies*

YEAR 2 – SEMESTERS 1 & 2
Core Modules
EG2951 Engineering Mathematics 2A
EG2952 Electrical Circuit Analysis
EG2953 Microcontroller Systems
EG2954 Network Fundamentals
EG2955 Electrical Installation Design
EG2956 Eco-Design & Sustainable System Development
EG2961 Engineering Mathematics 2B
EG2962 Power Devices & Applications
EG2963 Electrical Machines & Drives
EG2964 Automation Control & Applications
EG2968 Innovation & Entrepreneurship
EG2971 Electrical CAD Drawing
EG2972 Solar Photovoltaic Technologies
General Studies*

YEAR 3 – SEMESTERS 1 & 2
Elective Programmes (Choose one)
Power Systems Engineering
Core Modules
EG3952 Professional & Interpersonal Communication Skills
EG3959 Instrumentation and Supervisory Control
EG3962 Power System Analysis & Management
EG3968 Smart Grid
EG3970 Power Transmission & Distribution
EG3972 Full-Time Semestral Project**
General Studies*
Common Elective Module*** (Choose one)

ENTRY REQUIREMENTS**
You must have obtained the following minimum GCE O Level results:

Please refer to the section on entry requirements for diploma courses for more details.
In today’s world, electronics is becoming more pervasive, more connected, and more personal. From ubiquitous smartphones to intelligent autonomous vehicles, electronics shape our future and enrich our lives. Electronic engineers are the ones behind the design and creation of many smart devices that transform the way we live. If the thought of enhancing people’s daily lives with innovation excites you, then make this course your top choice. You will acquire capabilities and skills in developing smart electronic devices, intelligent systems and innovative solutions that are relevant to Singapore’s vision to become a Smart City. You can look forward to exciting careers in sectors such as Internet of Things (IoT), Media and Entertainment, Microelectronics, Telecommunications, Defence and Infocommunications.

DIPLOMA IN ELECTRONIC SYSTEMS
(formerly known as Diploma in Electronics, Computer & Communications Engineering)

COURSE STRUCTURE (continued)

Green & Smart Technologies
Core Modules
EG3952 Professional & Interpersonal Communication Skills
EG3958 Intelligent Building Systems
EG3999 Instrumentation and Supervisory Control
EG3969 Energy Systems & Power Distribution
EG3972 Full-Time Semestral Project
EG3975 Green Design Practices & Technologies
General Studies*
Common Elective Module*** (Choose one)
Internship#

Urban Transportation Systems
Core Modules
EG3952 Professional & Interpersonal Communication Skills
EG3959 Instrumentation and Supervisory Control
EG3969 Energy Systems & Power Distribution
EG3972 Full-Time Semestral Project
EG3981 Rail Transit & Electrification Systems
EG3982 Urban Mobility Technologies
General Studies*
Common Elective Module*** (Choose one)
Internship#

* To complete 60 hours for General Studies Modules with the aim of promoting a holistic education and learning experience. Choose modules from clusters that include foreign languages, communication and interpersonal skills, leadership and teamwork, values and society, general knowledge and interests, and healthy and active lifestyle.

** Students taking EG3976 or EG3974 would not need to do EG3972.

*** Common Elective Module (Choose one)
EG3998 Smart Grid
EG3975 Green Design Practices & Technologies
EG3981 Rail Transit & Electrification Systems
EG3983 Cyber Security Essentials
EG3984 IoT & Applications

# Internship (Choose one)
EG3971 Internship Programme (12 weeks)
EG3974 Overseas Internship Programme
EG3976 Internship Programme (24 weeks)
WHY THIS DIPLOMA?

• Get a broad-based and well-rounded education in all areas of engineering from the basics to advanced topics in a cutting-edge discipline.

• Gain valuable experience in different learning environments during overseas internships in countries such as France, the US and China.

• Develop skills in business, technology, entrepreneurship, and management.

• Focus on the exciting audio visual (AV) industry, covering subjects like AV system design, integration and deployment for business events, entertainment and live performances, audio video conferencing, collaborative learning, and home entertainment systems, among many others.

Business Management

Focus on developing the desired skill sets to take up positions in procurement, planning/ scheduling, project management, technical sales/marketing, business development, logistics/supply chain management in the telecommunications industry.

Electronics

Focus on microelectronics and wafer fabrication and gain knowledge in the fabrication of integrated circuits or microchips - which are the key components in electronic products such as cellular phones, computers and game consoles. This will prepare you for a career in the wafer fabrication sector with manufacturers of semiconductor wafers, integrated circuits and discrete electronic components.

Smart Connected Systems

Focus on integrating various enabling technologies and implementing smart connected systems as part of the Internet of Things (IoT) solutions architecture. You will learn how to implement embedded systems and device networks, develop firmware, configure gateways and build software applications that are the key components of IoT solutions.

ENTRY REQUIREMENTS*

• English Language (EL1)
• Mathematics (O Level)

DURATION

Three academic years on a full-time basis.

FURTHER EDUCATION

You can pursue further studies with up to two years’ exemption for related undergraduate programmes at reputable universities in Singapore, Australia, the UK or the US.

CAREER PROSPECTS

Graduates can look forward to ample opportunities and dynamic careers in the vibrant high-growth, high-tech engineering sector. Expect a dynamic and rewarding career as technologists, engineers or managers with industry leaders in:

- Aerospace industry
- Media & entertainment
- Telecommunications
- Infocommunications
- Defence
- Semiconductors
- Technopreneurship & entrepreneurship

Please refer to the section on entry requirements for diploma courses for more details.

COURSE STRUCTURE

YEAR 1 – SEMESTERS 1 & 2

Core Modules

EG1001 Engineering Mathematics 1A
EG1002 Engineering Science
EG1003 Electrical Principles
EG1004 Analog Electronics
EG1005 Computer & Programming
EG1008 Engineering Mathematics 1B
EG1009 Electric Circuits
EG1010 Digital Electronics
EG1014 Communication Skills 1
EG1226 Thinking & Problem Solving Skills
EG1232 Introduction to Engineering
EG1233 Application Programming

YEAR 1 – SEMESTERS 1 & 2

Core Modules

EG2168 Innovation & Entrepreneurship
EG2169 Microprocessor Technology & Applications
EG2170 Electronic Circuit Simulation
EG2371 PCB Design & Prototyping

YEAR 2 – SEMESTERS 1 & 2

Core Modules

EG2170 Engineering Mathematics 2A
EG2171 Electronic Circuit Analysis
EG2250 Data & Network Communications
EG2172 Communication Skills 2
EG2176 Innovation & Entrepreneurship
EG2179 Microprocessor Technology & Applications

YEAR 3 – SEMESTERS 1 & 2

Core Modules

EG3120 Operations Management
EG3121 Product Design & Evaluation
EG3377 Internet of Things & Applications

Elective Modules

• Engineering Mathematics 2B
• Software Engineering
• Computer Systems
• Digital Electronics

Common Elective Module*** (Choose one)

• English Language (EL1)
• Mathematics (O Level)

Core Modules

EG3250 Professional & Interpersonal Communication Skills
EG3255 Full-Time Semester Project**
EG3361 Acoustics & Audio Systems
EG3362 Video Systems & Visual Effects
EG3364 Av Systems Project

Career Internship**

Elective Modules (Choose one)

EG3363 Media & Multicasting Systems
EG3366 Lighting Technologies & Systems

Common Elective Module*** (Choose one)

Business Management

Core Modules

EG3250 Professional & Interpersonal Communication Skills
EG3255 Full-Time Semester Project**
EG3374 Operations Management
EG3375 Essentials of Marketing & Sales
EG3376 Supply Chain Management

Career Internship**

Elective Modules (Choose one)

EG3377 Product Design & Evaluation
EG3378 Internet of Things & Applications

Common Elective Module*** (Choose one)
Learn about the business side of engineering by taking advantage of this multidisciplinary course that integrates the principles and technologies of engineering with the concepts of business. Give yourself a competitive edge over your peers by having options in both the engineering and business sectors for your future career, academic development or entrepreneurial ventures.

For an integrated project spanning Year 1 to Year 3, you will design engineering solutions applicable to real-life business situations. It may even inspire you to initiate social entrepreneurship projects. In Year 3, you can choose to specialise in either Business Servitisation or Product Engineering.

There will be many opportunities for you to go overseas — from internships at world-class R&D centres and companies, to immersion trips to countries like South Korea, Japan and the UK.

### COURSE STRUCTURE (continued)

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| **Smart Connected Systems** | **Core Modules** |
| EG3250 | Professional & Interpersonal Communication Skills |
| EG3255 | Full-Time Semestral Project** |
| EG3366 | Embedded System Design & Technology |
| EG3370 | Wireless Communications & Networking |
| EG3371 | Smart Connected System Project |
| **General Studies** | **Internship** |

| **Elective Modules (Choose one)** | |
| EG3372 | Smart Device Applications |
| EG3373 | Sensors & Actuators |
| **Common Elective Module*** (Choose one) | |

* To complete 60 hours for General Studies Modules with the aim of promoting a holistic education and learning experience. Choose modules from clusters that include foreign languages, communication and interpersonal skills, leadership and teamwork, values and society, general knowledge and interests, and healthy and active lifestyle.

** Students taking EG3105 or EG3106 would not need to do EG3255. **

Internship (Choose one):
- EG3208 Overseas Internship Programme
- EG3300 Internship Programme (12 weeks)
- EG3355 Internship Programme (24 weeks)

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DIPLOMA IN ENGINEERING WITH BUSINESS
WHY THIS DIPLOMA?
• It is the only course with a specialisation in Business Servitisation, which is the bundling of services and solutions as a value-add for a product.
• You can go on overseas exchange programmes at institutes of higher learning.
• There are opportunities for internships at world-class companies or R&D centres locally or overseas through SEG’s strong partnerships with industry players.
• You can earn industry professional certifications and our Diploma Plus Programme certificate, as well as enjoy the flexibility to pursue a degree in engineering or business.

IT WILL ENABLE YOU TO...
• Design, develop, implement and market solutions for engineering and/or business application.
• Choose a career in engineering, business or related fields, and/or gain entry into related undergraduate and/or professional training programmes.
• Become a leader who can collaborate and communicate effectively with multidisciplinary teams.
• Contribute to innovative and enterprising endeavours.

DURATION
Three academic years on a full-time basis.

FURTHER EDUCATION
You will enjoy opportunities to pursue further studies with good advanced standing in relevant degree courses at reputable universities in Singapore, the UK, Australia, the US, Canada, New Zealand and other countries.

CAREER PROSPECTS
You will be able to support current and emerging needs of engineering industries in areas such as:
• Business planning & development
• Project planning & management
• Product design & development
• Logistics & supply chain management
• Operations management
• Research & development
• Business analytics
• Technopreneurship & entrepreneurship

ENTRY REQUIREMENTS*
You must have obtained the following minimum GCE O-Level results:
• English Language (EL1) Grade 1–7
• Elementary/Additional Mathematics Grade 1–6
• A Science subject Grade 1–6

DURATION
Three academic years on a full-time basis.

FURTHER EDUCATION
You will enjoy opportunities to pursue further studies with good advanced standing in relevant degree courses at reputable universities in Singapore, the UK, Australia, the US, Canada, New Zealand and other countries.

CAREER PROSPECTS
You will be able to support current and emerging needs of engineering industries in areas such as:
• Business planning & development
• Project planning & management
• Product design & development
• Logistics & supply chain management
• Operations management
• Research & development
• Business analytics
• Technopreneurship & entrepreneurship

ENTRY REQUIREMENTS*
You must have obtained the following minimum GCE O-Level results:
• English Language (EL1) Grade 1–7
• Elementary/Additional Mathematics Grade 1–6
• A Science subject Grade 1–6

COURSE STRUCTURE

YEAR 1 – SEMESTERS 1 & 2
Core Modules
EGM101 Mathematics 1A
EGM102 Applied Mechanics 1
EGM104 CAD/CAM/CAE Fundamentals
EGM105 Materials Science
EGM107 Mathematics 1B
EGM108 Electrical Principles & Circuits
EGM109 Communication Skills
EGM111 Programming Essentials
EGM181 Team & People Management
EGM182 Enterprise Resource Planning
EGM183 Engineering Economics
EGM191 Integrated Project 1
EGM192 Integrated Project 2

General Studies*

YEAR 2 – SEMESTERS 1 & 2
Core Modules
EGM201 Mathematics 2A
EGM202 Applied Mechanics 2
EGM207 Mathematics 2B
EGM208 Mechanical Design & Mechanics
EGM209 Thermofluids
EGM213 Analogues & Digital Electronics
EGM281 Marketing & Customer Relationship Management
EGM282 Operations Management
EGM283 Business Management
EGM284 Financial Management Accounting
EGM291 Integrated Project 3
EGM292 Integrated Project 4

General Studies*

YEAR 3 – SEMESTERS 1 & 2
Core Modules
EGM304 Professional & Interpersonal Communication Skills
EGM305 Engineering Systems & Simulation
EGM381 Project Engineering & Management
EGM392 Entrepreneurship
EGM393 Integrated Project 5

Elective Programmes (Choose one)
Business Servitisation
EGM385 Business Process Optimisation & Analytics
EGM386 Global Supply Chain Management

Product Engineering
EGM385 Product Lifecycle Management
EGM386 Product Design & Evaluation

* To complete 60 hours for General Studies Modules with the aim of promoting a holistic education and learning experience. Choose modules from clusters that include foreign languages, communication and interpersonal skills, leadership and teamwork, values and society, general knowledge and interests, and healthy and active lifestyle.
** Students taking EGM392 or EGM394 would not need to do EGM392.
# Internship (Choose one)
EGM395 Internship Programme (12 weeks)
EGM393 Internship Programme (24 weeks)
EGM392 Overseas Internship Programme

* Please refer to the section on entry requirements for diploma courses for more details.
Gear up to be part of the infocommunications and media (ICM) force that is transforming Singapore into #smartSG. There are many opportunities for you to fulfil your dreams and realise your ideas, whether it is to develop innovative solutions, design creative media or secure critical data. Immerse yourself in an innovation-driven environment supported by industry leaders such as Microsoft, Hewlett-Packard, Cisco Systems and Symantec, and venture forth for an enriching overseas attachment.

WHY THIS DIPLOMA?
• Benefit from a multidisciplinary and flexible curriculum.
• Discover your strengths and passion, and build specialised expertise in ICM areas of software, digital media, security and/or network connectivity.
• You can customise a significant part of your study programme to suit your interests and career aspirations.

IT WILL ENABLE YOU TO...
• Design, develop and implement infocomm and digital media solutions.
• Pursue a career in the infocomm and media industries.
• Develop life skills in creative and critical thinking, leadership, effective communication and technopreneurship.
• Further your studies by enrolling in a wide range of undergraduate and/or professional training programmes.

DURATION
Three academic years on a full-time basis.

FURTHER EDUCATION
Enjoy advanced standing when you pursue further studies at reputable universities in Singapore and overseas, such as the University of New South Wales and Imperial College London.

CAREER PROSPECTS
You will be highly sought-after in all areas of the digital media and infocomm industry. Exciting career choices include:
• Mobile apps developer
• Web designers/developer
• Social media & digital marketer
• 3D designers/animators
• Enterprise software developer
• Infocomm solutions integrator
• ICT services specialist
• Network & communications specialist
• Technopreneur
You can also pursue internationally recognised professional certifications issued by industry leaders such as Amazon Web Services, Cisco Systems and Microsoft.

ENTRY REQUIREMENTS*
You must have obtained the following minimum GCE O Level results:
• English Language (EL 1) Grade 1–7
• Elementary/Additional Mathematics Grade 1 – 6
• A Science subject Grade 1–6

Please refer to the section on entry requirements for diploma courses for more details.

COURSE STRUCTURE

YEAR 1 – SEMESTERS 1 & 2
Core Modules
EG1737 Digital Media & Design
EG1738 Object-Oriented Programming
EG1739 Database Fundamentals
EG1740 Computing Mathematics 1
EG1743 Data Communications & Networking
EG1744 Internet Application Development
EG1745 Programming Methodologies & Practices
EG1756 Thinking & Problem Solving Skills
EG1757 Communication Skills 1
EG1760 Infocomm Systems & Security
EG1761 Computing Mathematics 2
EG1762 UX Design for Multi-Devices

General Studies*
**COURSE STRUCTURE (continued)**

**YEAR 2 – SEMESTERS 1 & 2**

**Core Modules**
- EG2737 Operating System Management
- EG2738 Internet Programming
- EG2744 Network Technology
- EG2750 Communication Skills 2
- EG2754 Innovation & Entrepreneurship
- EG2758 Cyber Security Essentials
- EG2759 Open-Source Web Solutions Development

**General Studies**

**Elective Modules (Choose four)**
- EG2735 Data Structures & Algorithms
- EG2745 Animation for Interactive Media
- EG2747 Database Design & Implementation
- EG2748 Object-Oriented Analysis & Design
- EG2752 Network Services Implementation & Management
- EG2753 Software Engineering Practices
- EG2756 Creative Imaging
- EG2757 Data Analysis & Visualisation

**YEAR 3 – SEMESTERS 1 & 2**

**Elective Programmes (Choose one)**
- EG3752 Java Enterprise Development
- EG3755 Mobile Application Development
- EG3773 Professional & Interpersonal Communication Skills
- EG3774 Full-Time Semester Project**
- EG3779 Web 2.0 Application Development

**General Studies**

**Elective Modules (Choose two)**
- EG3761 ICT Infrastructure Management
- EG3762 Database Administration & Management
- EG3763 Technopreneurship Project
- EG3764 Smartphone & Tablet Application Development
- EG3765 Virtualisation and Cloud Computing
- EG3766 Gamification Techniques & Applications
- EG3767 Media & Multicasting System
- EG3768 Audio Visual Systems
- EG3769 Server Administration & Security
- EG3770 Internet of Things Apps Development

*** To complete 60 hours for General Studies Modules with the aim of promoting a holistic education and learning experience. Choose modules from clusters that include foreign languages, communication and interpersonal skills, leadership and teamwork, values and society, general knowledge and interests, and healthy and active lifestyle.

** ** Students taking EG3774 or EG3718 would not need to do EG3774.

**# Internship (Choose one)**
- EG3775 Internship Programme (12 weeks)
- EG3776 Internship Programme (24 weeks)
- EG3778 Overseas Internship Programme

**Ever thought of driving in the rain without the need for wipers? How about harnessing solar energy from your shirt to charge a mobile phone? These are the wonders that nanotechnology and materials science can create.**

This course adopts a multidisciplinary curriculum that combines applied sciences and engineering. You will learn how to use nanotechnology to deliver cheaper, smaller, better, faster and stronger products using advanced materials such as polymers, ceramics and composites.

Our strong industry links with nanotechnology and advanced materials companies and institutions will further provide you with ample opportunities to work on live industry projects. This will prepare you for a wide range of careers in the materials science and nanotechnology sectors.
WHY THIS DIPLOMA?
• Get wide exposure to engineering and science.
• Enjoy good opportunities for R&D in academia or research institutions.
• Be part of an exciting new trend in technology.
• Gain international exposure and experience through our Overseas Internship Programme in countries such as Australia, Canada, France, the UK and Japan.

IT WILL ENABLE YOU TO...
• Gain a broad-based foundation in the sciences behind advanced materials like polymers and ceramics.
• Improve products in the electronics, consumer, medical and pharmaceutical, chemical, and renewable clean energy industries.
• Deliver improved products that have new and far greater functionalities at a lower cost.
• Design and develop advanced and innovative materials.

DURATION
Three academic years on a full-time basis.

FURTHER EDUCATION
Receive advanced standing or module exemptions for relevant or equivalent degrees and programmes at many universities in Singapore and overseas, such as the University of New South Wales, University of Sydney, University of Western Australia, University of South Australia, University of Southern Queensland, Australian National University, Queen Mary University of London, Newcastle University, University of Sheffield and Cranfield University.

CAREER PROSPECTS
Look forward to rewarding and challenging careers in:

Materials Characterisation & Analysis
You can take up positions as a quality control engineer and laboratory/research technologist in advanced materials analysis laboratories for both industry and research institutions. This is because you have practical training in operating and handling specialised equipment, instruments and tools for the characterisation and analysis (including failure analysis) of advanced materials, in support of the complete product development cycle.

Materials Development & Processes
Your strong knowledge in chemistry and materials science will be needed as a materials technologist and development engineer. You can also become a materials process engineer with your competencies in various materials process technologies.

Nanotechnology
You can take on a number of roles that support the design and development of nanotechnology products in nanotechnology and nanoscience laboratories using smart, nano-structured devices and nanomaterials.

ENTRY REQUIREMENTS*
You must have obtained the following minimum GCE O-Level results:
• English Language (EL1) Grade 1-7
• Elementary/Additional Mathematics
• A Science subject Grade 1-6

COURSE STRUCTURE

YEAR 1 – SEMESTERS 1 & 2
Core Modules
EGJ101 Mathematics 1A
EGJ103 Electrical Principles & Circuits
EGJ104 3D Modelling
EGJ105 Communication Skills
EGJ106 Physics
EGJ107 Mathematics 1B
EGJ108 Inorganic & Physical Chemistry
EGJ109 Mechanics
EGJ110 Materials Science
EGJ111 Computer Programming
EGJ112 Good Laboratory Practices
EGJ113 Introduction to Engineering General Studies*

Internship*

YEAR 2 – SEMESTERS 1 & 2
Core Modules
EGJ201 Mathematics 2A
EGJ202 Thermodynamics
EGJ203 Polymers & Composites
EGJ204 Organic Chemistry
EGJ205 Materials Analysis & Nanomaterials
EGJ206 Materials & Nanotechnology Project 1
EGJ207 Mathematics 2B
EGJ208 Advanced Materials Science
EGJ209 Mechanics of Materials
EGJ210 Nanology & Quality Control
EGJ211 Micro & Nanotechnology
EGJ212 Materials & Nanotechnology Project 2 General Studies*

Internship*

YEAR 3 – SEMESTERS 1 & 2
Elective Programmes (Choose one)
Materials for Sustainable Technology
Core Modules
EGJ303 Nanomaterials & Commerce
EGJ304 Professional & Interpersonal Communication Skills
EGJ311 Energy Harvesting & Storage
EGJ312 Sustainable Materials & Technology
EGJ324 Full-Time Semester Project**
General Studies*
Internship*

Elective Programmes (Choose two)
EGJ302 Semiconductor Technology
EGJ306 Electronic Materials
EGJ311 Nanomaterials & Safety

Functional & Structured Materials
Core Modules
EGJ301 Nanoscience
EGJ303 Nanomaterials & Commerce
EGJ304 Professional & Interpersonal Communication Skills
EGJ306 Advanced Crystalline Solids
EGJ324 Full-Time Semester Project**
General Studies*
Internship*

Elective Modules (Choose two)
EGJ305 Water Fabrication Processes
EGJ306 Electronic Materials
EGJ311 Energy Harvesting & Storage

Elective Modules (Choose two)
EGJ306 Electronic Materials
EGJ309 Smart Materials
EGJ313 Nanomaterials & Safety

Advanced Electronic Materials & Semiconductor Technology
Core Modules
EGJ301 Nanomaterials Science
EGJ303 Nanomaterials & Commerce
EGJ304 Professional & Interpersonal Communication Skills
EGJ324 Full-Time Semester Project**
General Studies*
Internship*

* To complete 60 hours for General Studies Modules with the aim of promoting a holistic education and learning experience. Choose modules from clusters that include foreign languages, communication and interpersonal skills, leadership and teamwork, values and society, general knowledge and interests, and healthy and active lifestyle.
** Students taking EGJ325 or EGJ326 would not need to do EGJ324.
* Internship (Choose one)
EGJ323 Internship Programme (12 weeks)
EGJ325 Internship Programme (24 weeks)
EGJ326 Overseas Internship Programme

# Please refer to the section on entry requirements for diploma courses for more details.
If intelligent robots fascinate you and you would like to create high-tech devices, then mechatronics could be the course for you. Mechatronics is a highly creative field of engineering that integrates technology to make things work, allowing you to create hybrid machines, robots and equipment to improve our industries and daily lives. Learn the different disciplines of mechanical engineering, electronics and computer software, and master their use in this diploma course.

WHY THIS DIPLOMA?
• Our multidisciplinary curriculum has produced students who have won numerous international accolades, including Singapore’s first medal in the Mechatronics category of the WorldSkills Competition.
• You can indulge your passion for robotics. Our students consistently win medals at prestigious and internationally acclaimed humanoid robot competitions, such as FIRA HuroCup and the International Robot Contest.

IT WILL ENABLE YOU TO...
• Gain a sound, broad-based foundation in mechatronics.
• Choose a specialisation in application technologies such as Aerospace Technology, Automation & Robotics Technology, Wafer Fabrication Technology and Biomedical Engineering.
• Position yourself for a career in the aerospace industry.
• Be exposed to advanced robotics, automation and wafer technology, as well as develop problem-solving skills in these areas.

DURATION
Three academic years on a full-time basis.

FURTHER EDUCATION
You can further your studies at reputable universities in Singapore and overseas.

CAREER PROSPECTS
You will be highly sought-after in a wide variety of industries, and can expect a dynamic and rewarding career in:
• Service engineering
• Robotics
• Automation engineering
• Systems integration engineering
• Equipment engineering
• Development engineering
• Biomedical engineering
• Aerospace engineering

Please refer to the section on entry requirements for diploma courses for more details.

ENTRY REQUIREMENTS
You must have obtained the following minimum GCE O Level results:
• English Language (EL1) Grade 1–7
• Elementary/Additional Mathematics Grade 1–6
• A Science subject Grade 1–6
COURSE STRUCTURE

YEAR 1 – SEMESTERS 1 & 2
Core Modules
- Students from AMP and CEP have to complete these modules in their respective programmes
- EGB101 Engineering Mathematics 1A
- EGB102 Engineering Mathematics 1B
- EGB103 Aerospace Manufacturing Technology
- EGB104 Engineering Drawing & Modelling
- EGB105 Materials Technology
- EGB107 Engineering Mathematics 1B
- EGB108 Electrical Principles & Circuits
- EGB109 Analogue & Digital Electronics
- EGB110 Communication Skills
- EGB111 Computer Programming
- EGB112 Semester Project 2
- EGB113 Introduction to Engineering
- General Studies*

YEAR 2 – SEMESTERS 1 & 2
Core Modules
- EGB201 Engineering Mathematics 2A
- EGB203 Electrical Machines
- EGB204 Microcontroller Applications
- EGB205 Quality Assurance
- EGB206 Seminar Project 4
- EGB207 Engineering Mathematics 2B
- EGB209 Thermofluids
- EGB214 Robotic Systems & Peripherals
- EGB215 Automatic Control
- EGB216 Mechanical Design
- EGB217 Device Interfacing & Programming
- EGB218 Semester Project 3
- General Studies*

YEAR 3 – SEMESTERS 1 & 2
Elective Programmes (Choose one)
- Automation & Robotics Technology
  - Core Modules
    - EGB303 Semester Project 5
    - EGB304 Professional & Interpersonal Communication Skills
    - EGB324 Full-Time Semester Project**
    - EGB331 Motion Control & Drives
    - EGB332 Automation Systems Design
    - General Studies*
    - Internship*
  - Elective Modules (Choose two)
    - EGB305 Communication & Networking
    - EGB306 Intelligent Systems
    - EGB310 Water Fabrication Processes
    - EGB311 Mechanisms Design & Simulation
    - EGB312 Systems & Control
    - Aerospace Technology
    - Core Modules
      - EGB303 Semester Project 5
      - EGB304 Professional & Interpersonal Communication Skills
      - EGB324 Full-Time Semester Project**
      - EGB341 Aerospace Manufacturing System
      - EGB342 Aerospace Material & NDT Technology
      - General Studies*
      - Internship*
  - Biomedical Engineering
    - Core Modules
      - EGB303 Semester Project 5
      - EGB304 Professional & Interpersonal Communication Skills
      - EGB314 Anatomy & Physiology
      - EGB315 Biomedical Manufacturing Technology
      - EGB316 Full-Time Semester Project**
      - General Studies*
      - Internship*
  - Wafer Fabrication Technology
    - Core Modules
      - EGB303 Semester Project 5
      - EGB304 Professional & Interpersonal Communication Skills
      - EGB310 Water Fabrication Processes
      - EGB324 Full-Time Semester Project**
      - General Studies*
      - Internship*
  - Elective Modules (Choose two)
    - EGB317 Communication & Networking
    - EGB318 Intelligent Systems
    - EGB324 Full-Time Semester Project**
    - EGB341 Aerospace Manufacturing System
    - EGB342 Aerospace Material & NDT Technology
    - General Studies*
    - Internship*

Elective Modules (Choose two)
- EGB334 Systems & Control
- EGB343 Computer Aided Manufacturing/Engineering
- EGB344 Reliability & Failure Analysis
- EGB345 Aircraft Propulsion System
- EGB350 Communication & Networking
- EGB351 Computer Aided Manufacturing/Engineering
- EGB352 Nanomaterials Science
- EGB353 Electronic Materials
- EGB354 Systems & Control
- EGB355 Vacuum Technology & RF Plasma

* To complete 60 hours for General Studies Modules with the aim of promoting a holistic education and learning experience. Choose modules from clusters that include foreign languages, communication and interpersonal skills, leadership and teamwork, values and society, general knowledge and interests, and healthy and active lifestyle.

** Students taking EGB325 or EGB326 would not need to do EGB324.

* Internship (Choose one)

- EGB323 Internship Programme (12 weeks)
- EGB325 Internship Programme (24 weeks)
- EGB326 Overseas Internship Programme

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