AEROSPACE/ELECTRICAL/ELECTRONICS PROGRAMME

Are you excited about cool aircraft, vehicles, green and smart devices and systems, and how these are created through the use of advanced aerospace systems and smart electronic and green technologies? Are you keen to know how aircraft can fly without fuel and how drones make use of smart electronic systems to perform everything from search-and-rescue missions to delivering meals to your dining table? If you are, this programme gives you a head start in these areas and allows you to explore career possibilities in various industries such as aerospace, defence, microelectronics, smart connected systems, and power and green technologies.

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 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 relevant Science subject** Grade 1–6

COURSE STRUCTURE

YEAR 1 – SEMESTER 1

Core Modules

EG1861 Introduction to Engineering
EG1862 Engineering Science
EG1863 Electrical Principles
EG1864 Computer Programming
EG1865 Engineering Mathematics 1A
EG1866 Communication Skills
EG1867 Introduction to Aerospace Systems

General Studies*

FROM YEAR 1 – SEMESTER 2

Choose one of the following courses:

- Diploma in Aerospace Systems & Management
- Diploma in Electrical Engineering with Eco-Design
- Diploma in Electronic Systems

^ 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.

For detailed module synopses, please refer to the online Prospectus at www.nyp.edu.sg/prospectus

MODULE SYNOPSES
SCHOOL OF ENGINEERING

EG1861
Introduction to Engineering **[60 hours]**
This module aims to promote students' interest in engineering by providing a platform for students to have their first hands-on experience in building practical projects in the aerospace systems, electrical & electronics engineering disciplines, applying and integrating the knowledge from different modules in the semester. Students will first conceptualise, design, implement and finally operate on interesting and practical projects. Through this platform, students will be able to hone their creative thinking and problem-solving skills, build synergistic teamwork and enhance their communication skills.

EG1862
Engineering Science **[30 hours]**
This module provides students with the basic physics principles and tools necessary to underpin their education in engineering. It will enable them to apply the relevant knowledge, techniques, and skills in engineering contexts. Topics covered include units, vectors, mechanics, waves, and thermal physics. At the end of this module, students will be able to demonstrate understanding of and competence in basic engineering physics.

EG1863
Electrical Principles **[60 hours]**
This module covers electrical fundamentals and their applications in electrical and electronic circuits. Topics covered include principles of electricity, resistive circuits, magnetism and electromagnetism, inductive and capacitive circuits, and DC & AC sources. Students will need this knowledge to analyse, interpret and solve engineering problems.

EG1864
Computer Programming **[60 hours]**
This module will provide the foundation for the programming module. Students will learn computer programming for engineering applications. They will learn about computer hardware and software, problem-analysis, problem-solving techniques and develop essential programming skills. Such understanding *of* the various software development techniques is valuable for prospective programmers to create application software using modular design approach.

EG1865
Engineering Mathematics 1A **[60 hours]**
This module provides students with the basic mathematical principles and tools necessary to underpin their education in the engineering discipline. It will enable them to apply mathematical methods, tools and notations proficiently in the analysis and solution of engineering problems. Topics covered include engineering functions, trigonometry, complex numbers, determinants, matrices and vectors. At the end of this module, students will be able to demonstrate understanding of, and competence in, the basic mathematics of engineering, such as vectors, matrices, exponential and logarithmic functions, and complex numbers.

EG1866

Communication Skills **[30 hours]**

This module gives students a broad understanding of the communication process and interpersonal communication skills to interact effectively with others. The module will also cover the various forms of writing skills – technical, proposal and report – required in an engineering environment. In addition to interacting more effectively with others, their oral presentation skills will also be honed so that they become effective presenters.

EG1867

Introduction to Aerospace Systems **[30 hours]**

This module introduces the theory of flight and provides students with an appreciation of electronics-based aerospace systems which enable smooth flight and operations of aircraft. Topics covered include the basics of flight and avionics systems such as aircraft electrical, instruments, communication, navigation and flight control systems.