Have a desire to create? Interested to learn how Internet-enabled devices are connected in an intelligent fashion? Professionals with knowledge of electronics are the ones behind the design and creation of many devices that we use every day — from smartphones, smartwatches and tablets to MP3/Hi-Res music players, wireless chargers and GPS navigators. If the thought of enhancing people’s daily lives with your innovations excites you, then make this course your top choice and prepare to train using state-of-the-art equipment and in modern research laboratories. You can look forward to careers in sectors such as aerospace, media and entertainment, Internet of Things, microelectronics, telecommunications, defence and infocommunications.
WHY THIS DIPLOMA?
• Get a broad-based and well-rounded education to sharpen your analytical and communications skills, essential for identifying challenges and producing innovative solutions.
• Develop a solid engineering foundation, with the flexibility to choose an elective programme of your interest.
• Keep abreast of the latest technologies and enrich your studies with first-hand experiences at our R&D centres, which are set up in collaboration with many top multinational corporations like Microsoft, Intel and National Instruments.
• Gain valuable experience in different learning environments during overseas internships in countries such as France, the US and China.

IT WILL ENABLE YOU TO...
• Learn with real-world equipment and in modern research laboratories as you gain hands-on experience working in teams to tackle real-world challenges.
• Gain broad-based systems knowledge in electronics.
• Develop skills in business, technopreneurship, and entrepreneurship or even learn a foreign language.
• Choose a final year elective in one of the following areas:

Aerospace Electronics
Focus on the demands of aerospace maintenance, repair and overhaul (MRO) to gain knowledge in a broad spectrum of activities spanning air hub, MRO, design, manufacturing and aviation services.

Audio Visual System Design
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, amongst 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 and logistics/ supply chain management in the diverse electronics industry.

Microelectronics
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.

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 sectors. 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

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

^ 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
General Studies*

YEAR 2 – SEMESTERS 1 & 2
Core Modules
EG2001  Engineering Mathematics 2A
EG2002  Electronic Circuit Analysis
EG2008  Engineering Mathematics 2B
EG2010  Electronic Communications
EG2098  Industrial Electronics & Control
EG2120  Data & Network Communications
EG2157  Communication Skills 2
EG2168  Innovation & Entrepreneurship
EG2169  Microprocessor Technology & Applications
EG2170  Electronic Circuit Simulation
EG2171  PCB Design & Prototyping
General Studies*

YEAR 3 – SEMESTERS 1 & 2
Elective Programmes (Select one)
Aerospace Electronics
Core Modules
EG3250  Professional & Interpersonal Communication Skills
EG3255  Full-Time Semestral Project**
EG3350  Aircraft Electrical and Instrument Systems
EG3351  Aircraft Communication and Navigation Systems
EG3352  Flight Control Systems
General Studies*
Internship#

Elective Modules (Choose one)
EG3353  Aerospace Operation and Practices
EG3354  Human Factors & Aviation Legislation

Common Elective*** (Choose one)

Audio Visual System Design
Core Modules
EG3250  Professional & Interpersonal Communication Skills
EG3255  Full-Time Semestral Project**
EG3361  Acoustics & Audio Systems
EG3362  Video Systems & Visual Effects
EG3364  AV Systems Project
General Studies*
Internship#

Elective Modules (Choose one)
EG3363  Media & Multicasting Systems
EG3366  Lighting Technologies & Systems

Common Elective*** (Choose one)
### Course Structure

#### Business Management

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

**General Studies***

**Internship***

**Elective Modules (Choose one)**
- EG3377  Product Design & Evaluation
- EG3378  Internet of Things & Applications

**Common Elective*** (Choose one)

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#### Microelectronics

**Core Modules**
- EG3244  Semiconductor Technology
- EG3245  Wafer Fabrication Processes
- EG3250  Professional & Interpersonal Communication Skills
- EG3255  Full-Time Semestral Project**
- EG3367  IC Layout Design

**General Studies***

**Internship***

**Elective Modules (Choose one)**
- EG3027  Instrumentation & Test Engineering
- EG3232  FPGA & Applications

**Common Elective*** (Choose one)

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#### Smart Connected Systems

**Core Modules**
- EG3250  Professional & Interpersonal Communication Skills
- EG3255  Full-Time Semestral Project**
- EG3369  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*** (Choose one)

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* 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 EG3365 or EG3108 would not need to do EG3255.

* Internship (Choose one)
  - EG3108  Overseas Internship Programme
  - EG3110  Internship Programme (12 weeks)
  - EG3365  Internship Programme (24 weeks)

*** Common Elective (Choose one)
- EG3027  Instrumentation & Test Engineering
- EG3252  Technopreneurship Project
- EG3357  Solar Technology
- EG3361  Acoustic & Audio Systems
- EG3368  Automation Systems & Applications
- EG3370  Wireless Communications & Networking
- EG3372  Smart Device Applications
- EG3373  Sensors & Actuators
- EG3374  Operations Management
- EG3375  Essentials of Marketing & Sales
- EG3376  Supply Chain Management
- EG3378  Internet of Things & Applications

For detailed module synopses, please refer to the online Prospectus at www.nyp.edu.sg/prospectus
**EG1001**

*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.

**EG1002**

*Engineering Science*  
[30 hours]

This module provides students with an understanding of applied science relevant to the study of aerospace systems, electrical and electronics engineering. Topics covered include units, vectors, kinematics, force, work, energy, momentum, heat and waves. At the end of this module, students will be able to apply the knowledge, techniques, and skills in the analysis and solution of engineering problems.

**EG1003**

*Electrical Principles*  
[60 hours]

This module will introduce students to electrical fundamentals and their uses and applications in electrical and electronics circuits. Emphasis is placed on conceptual understanding. Topics include: Basic circuit elements and laws, simple resistive, capacitive and inductive circuits, charging and discharging of capacitive and inductive DC circuits, magnetism and electromagnetism and DC and AC sources. Students will need this knowledge to analyse, interpret and solve engineering problems.

**EG1004**

*Analog Electronics*  
[75 hours]

This module covers various analog electronic devices and circuits. Students will learn the structures and characteristics of these electronic devices and how they function. Semiconductor devices covered include rectifier diodes, special-purpose diodes, bipolar junction transistors, field-effect transistors and operational amplifiers. Optimal design and operations of the devices and their real-life applications will also be discussed. This module will provide the foundation for advanced electronic modules in this course.

**EG1005**

*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.

**EG1008**

*Engineering Mathematics 1B*  
[60 hours]

This module provides students with the essential knowledge in calculus and analytical skills for solving engineering problems encountered in their course of study. It also serves as a foundation for advanced topics in the second year. Topics include concept of limits; derivatives of polynomial, trigonometric, inverse trigonometric, exponential and logarithmic functions; indefinite and definite integrals of common engineering functions; and differentiation and integration with engineering applications.
EG1009

**Electric Circuits**

[60 hours]

This module aims to develop student’s ability to analyse circuits. Emphasis is placed on conceptual understanding. Topics include basic circuit elements and laws, simple resistive circuits, capacitance and inductance, techniques of circuit analysis, sinusoidal steady-state analysis, steady-state power calculation, and resonance and balanced three-phase circuits. Students will need these techniques of circuit analysis to analyse, interpret and solve engineering problems.

EG1010

**Digital Electronics**

[75 hours]

This module is designed to provide an understanding of digital concepts and design techniques for topics such as number systems, combinational logic, arithmetic circuits and sequential logic. Such knowledge acquired can be applied in the area of analysis, troubleshooting, design and development of digital systems. To enhance students’ knowledge in the concepts introduced, case studies will be introduced where the various topics covered and implemented in digital systems will be analysed and discussed to illustrate areas of applications.

EG1014

**Communication Skills 1**

[30 hours]

This module is designed to equip students with oral and written communication skills required in an academic and social environment. The students will learn the essentials of the communication process, expressions in polite communication, reading and note-taking skills as well as technical writing skills. Students will practise presentation techniques to enable them to speak with greater confidence. The focus is to help students enhance their interpersonal communication abilities and develop positive self-esteem to better handle social and workplace situations.

EG1226

**Thinking & Problem Solving Skills**

[30 hours]

This module aims to enhance the students’ thinking and problem identification skills and ability to reason and analyse problems and to synthesise, evaluate and solve problems. The topics covered include critical thinking, creative thinking, effective communication and problem-solving skills for decision-making. The module will be augmented with case studies, assignments and projects. At the end of the module, the thinking and problem-solving skills acquired serve as a foundation for advance modules in innovation and entrepreneurship.

EG1232

**Introduction to Engineering**

[60 hours]

This module is designed to promote students’ interest in engineering by providing a platform for students to have their first hands-on experience in building practical projects in electronics engineering by applying and integrating the knowledge gained 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.

EG1233

**Application Programming**

[60 hours]

This module provides the foundation for software application development based on rapid application development techniques and object-oriented programming concepts. Using widely deployed industry development tools and programming framework, the module will cover programming language syntax, structures, concepts, techniques and industry best practices in application development. Students will acquire the necessary skills to develop and deploy event-driven and GUI-based applications.
EG2001  
**Engineering Mathematics 2A**  
[60 hours]
This module provides students with the basic theory of ordinary differential equations and Laplace transform. The module focuses on differential equations that arise in practice and the emphasis will be on solving these equations and understanding the possible behaviours of solutions. Topics covered include partial derivatives, first and second order differential equation and their applications, numerical approximation to solutions of differential equations, Laplace transform and applications. At the end of the module, students will be able to demonstrate a sound knowledge of a range of techniques for solving linear ordinary differential equations and apply them to solve real-life problems in engineering.

EG2002  
**Electronic Circuit Analysis**  
[75 hours]
This module covers analytical methods and techniques to evaluate electronic circuits and electronic systems, including transistor amplifiers and op-amp applications used in various types of circuit configuration, and application of modular concepts in system design. Topics include two-port network, BJT and FET transistor modelling for small-signal analysis, transistor amplifier configurations, amplifier frequency response, op-amp circuits, filters, waveform generators, system gain and system bandwidth. It provides students with the necessary knowledge pertinent to basic electronic circuits and analysis in electronics, computer & communication systems.

EG2008  
**Engineering Mathematics 2B**  
[60 hours]
This module provides students with the necessary mathematical training that will assist and expand their experiences within their discipline of study. The module contains two parts. The first part focuses on Fourier analysis and discusses how periodic signals in the time domain can be represented in the frequency domain. The aim of the second part is to give students a working knowledge of statistical concepts so that statistical reasoning can be correctly applied to experimental results and their statistical significance discussed. Topics include Fourier series, probability concepts, probability distribution (Binomial, Poisson and Normal), sampling distributions, estimation and linear regression. At the end of the module, students will be able to demonstrate a sound knowledge of the mathematical training and apply them to solve real-life problems in engineering.

EG2010  
**Electronic Communications**  
[90 hours]
This module covers the building blocks and the principles on how a typical electronic communication system operates. It provides the students with knowledge of the nature of signals in both the time and frequency domain and explains how information signals may be transmitted using modulated carrier signals for analog and digital systems. The module also covers radio frequency transmission lines and wave propagation. Students will develop an understanding of how electronic communication technology could be adopted in modern society through projects and case studies.

EG2098  
**Industrial Electronics & Control**  
[60 hours]
This module covers the knowledge and skills needed for the application of various industrial electronic devices and control systems. The main topics covered include relays and automation sensors, electric motors and drives, programmable logic controllers (PLCs) and control systems. This module will prepare students for future careers in the industrial automation and control sector with industry-relevant knowledge and skills training.
EG2120  
**Data & Network Communications**  [75 hours]
This module covers the concepts and fundamentals of data communication and networking. Topics include interface standards and protocols used in LAN, WAN and WLAN environments. This module equips students with basic knowledge in data and network communications. It provides students with pertinent knowledge of data and network communications.

EG2157  
**Communication Skills 2**  [30 hours]
This module is designed to equip students with good communication strategies to enhance their interpersonal and teamwork skills. In addition to gaining insights into negotiation and conflict management, students will also learn how to organise information in report writing and hone their presentation skills which they can apply in their studies and work. The focus is to enable students to understand and acquire the communication skills they will need in an academic and work environment.

EG2165  
**Innovation & Entrepreneurship**  [30 hours]
The module aims to sharpen the students’ critical thinking and problem-solving skills to come up with innovative solutions and to develop marketable products and services. Topics covered include innovative process framework, business venture creation, strategic planning, intellectual properties, business structure, finance, marketing and business plan. It aims to simulate business management experiences by requiring students to innovate, communicate and defend their ideas through an emulated business environment. Case projects from the industry will be discussed and analysed.

EG2169  
**Microprocessor Technology & Applications**  [90 hours]
This module provides students with foundational knowledge of microcontroller and microcontroller programming. Topics covered include microcontroller architecture, programming, and interfacing. Assembly and embedded C language are used to build students’ foundation in microcontroller architecture and skill set in the development of microprocessor-based applications. Microcontrollers have been and continue to be an important part of the electronics industry. This module will enable the students to develop applications based on microcontrollers.

EG2170  
**Electronic Circuit Simulation**  [45 hours]
This module focuses on electronic system design and analysis through simulation and implementation adopting industry standard methodologies. Students will develop know-how in digital design, system partitioning, design verification and implementation and undertake a project on digital systems simulation and implementation to reinforce the concepts learnt. In analog design and simulation, analysis techniques such as DC operating point, DC sweep, transient and AC analyses will also be covered. This module provides the students with circuit simulation and implementation skill sets to support the needs of the electronics or related industry sectors.

EG2171  
**PCB Design and Prototyping**  [45 hours]
This module is designed to equip students with essential printed circuit board (PCB) design knowledge, and introduces the use of computer-aided PCB design tools for multi-layer printed circuit boards. Students will have the opportunity to use industry standard components packages for PCB design practices. Students will also acquire skills in soldering, wire wrapping, packaging and testing relevant to the industry.

EG3027  
**Instrumentation & Test Engineering**  [60 hours]
This module provides students with the principles, operations and applications of instrumentation and test measurement systems. It also examines widely used industrial techniques for automated testing of electronic circuits and systems. Topics include data acquisition concepts, measurement analysis and instrument control through hands-on experience in using computers for instrumentation and testing. Students will also be equipped with an industry-standard graphical system design tool, which is valuable for working in the instrumentation/test engineering industry.
EG3232
FPGA & Applications  [60 hours]
This module is designed to help students understand FPGA technologies and develop the knowledge required to use FPGAs in various system applications within the electronics industry. It covers the characteristics and technologies of FPLDs and FPGAs as well as their applications in digital systems. Design techniques, verification and implementation of digital circuits using EDA hardware and software are emphasised. Students will be taught digital design methodologies, architecture and technologies of programmable devices like FPLDs and FPGAs. They will gain practical design experience through laboratory sessions. Other topics include high-level design methodology for digital circuits using Very High Speed Integrated Circuit Hardware Description Language (VHDL). Such an understanding is valuable for perspective digital test, design and system engineers or managers.

EG3244
Semiconductor Technology  [60 hours]
This module aims to equip students with the fundamental principles pertaining to semiconductor devices. It includes atomic physics, semiconductor materials and the physics of semiconductor devices. Students will also learn about semiconductor assembly processes, failure analysis techniques, reliability and testing methods.

EG3245
Wafer Fabrication Processes  [60 hours]
This module provides students with essential knowledge of wafer fabrication processes for IC (integrated circuit) chips in the semiconductor manufacturing industry. Major topics covered include oxidation, diffusion, photolithography, etching, ion implantation, thin film deposition, chemical mechanical polishing, wafer cleaning, and process integration. Practical skills pertaining to these technologies will be emphasised in the laboratory to enhance the understanding of wafer fabrication in a semiconductor-manufacturing environment.

EG3250
Professional & Interpersonal Communications Skills [30 hours]
This module aims to help students understand and acquire communication skills for their entry into the job market as working professionals. It focuses on job search skills and includes resume and cover letter writing, as well as interview skills. Students will gain insight into change management, organisational structure and corporate culture. They will also learn about business correspondence. In all, students will gain competence in job search skills and adaptability to the work environment of the relevant industry.

EG3252
Technopreneurship Project  [60 hours]
This module provides opportunities for students to apply their skills and knowledge both in technology and in business towards the realisation of innovations in an integrated manner. Specifically, emphasis will be placed on prototype development, evaluation of innovative ideas, approaches and solutions, technologies evaluation and business plan preparation. The module provides students with the knowledge and skills needed for prototype development and subsequent commercialisation.

EG3255
Full-Time Semestral Project  [12 weeks]
This module enables students to put the knowledge and skills they have acquired from the course into practice, developing solutions for real-life applications. Projects will be assigned to students who will work under staff supervision to develop and produce the desired project deliverables. In addition to equipping students with technical and soft skills for project development, this module will enable them to develop problem-solving skills and instil the habit of lifelong learning to prepare students for entry into the workforce.

EG3350
Aircraft Electrical & Instrument Systems  [60 hours]
This module provides students with the operating principles and applications of the electrical systems and equipment used in aircraft for the generation, distribution and utilisation of electrical power as well as the instruments required for aircraft operation. These topics are fundamental in the aerospace electronics industry.
EG3351  
**Aircraft Communications & Navigation Systems**  [60 hours]
This module covers the operation and applications of communication and navigation systems used in aircraft. Topics include the different types of aircraft systems for internal and external communications, aircraft navigation for en-route and landing, air traffic radar control and in-flight entertainment systems. The importance of Electromagnetic Compatibility (EMC) in airborne systems will also be emphasised. Such an understanding is valuable in the maintenance, repair and overhaul (MRO) and manufacturing sectors of the aerospace industry.

EG3352  
**Flight Control Systems**  [60 hours]
This module covers the fundamentals of aerodynamics, flight stability and control and the principles of automatic flight control systems. Topics covered include theory of flight, fixed wing flight controls, flight management system and rotary wing flight controls. The module prepares students to have knowledge of aerodynamics, flight mechanics, stability and control and operation of autopilots for fixed wing aircraft for the aerospace industry.

EG3353  
**Aerospace Operation and Practices**  [60 hours]
This module is designed to foster understanding of the industry practices in aircraft operation and maintenance, and to impart practical skills for the proper handling and usage of aircraft maintenance tools. Coverage includes quality management system, safety precaution requirements, e.g. in aircraft handling and storage in areas such as bays and hangars, interpretation of schematic diagrams for aircraft equipment installation, techniques on disassembly, inspection, testing and assembly of avionic systems. This module imparts essential knowledge and skills in aerospace operations that are required in the industry.

EG3354  
**Human Factors & Aviation Legislation**  [60 hours]
This module covers aviation legislation regulating conduct of airlines and aerospace organisations and human factors principles impacting performance of aerospace personnel. Coverage includes civil aviation regulation agencies, aviation legislation and human factors including performance factors, error models and errors arising from task, workload and shift patterns as well as the influence of physical, social and organisational factors. The knowledge acquired in this module is an essential requirement for achieving the aircraft maintenance engineer licence in the aerospace industry.

EG3357  
**Solar Technology**  [60 hours]
This module covers the basic principles of photovoltaic devices and the configuration and operation of standalone, hybrid and grid-tied photovoltaic systems. Students will learn to design and deploy photovoltaic systems with considerations such as load and capacity requirements, grid-tie inverter and charger controller selection and battery sizing. Case studies will be used to illustrate the applications of solar photovoltaic systems in intelligent green buildings. Such an understanding is valuable in the clean energy sectors of the clean technology industry.

EG3361  
**Acoustic and Audio Systems**  [60 hours]
This module develops students with the know-how in audio system design, integration, deployment, and optimisation for indoor and outdoor settings. Students will be able to determine spatial acoustic characteristics and implement enhancements to achieve optimum listening condition, devise audio systems layout design based on spatial and event requirements, design, integrate, deploy and test audio systems as well as to verify and optimise acoustic performance to meet requirements for clarity and fidelity.
EG3362
Video Systems & Visual-Effects [60 hours]
Students will acquire expertise in video and projection system design, interfacing and integrating the various components, performance assessment and optimisation. Display and projection technologies, distribution and routing systems, design considerations and architectures of video systems for different presentation and broadcast needs will also be covered. Such an understanding is valuable for video and projection system designers and integrators, video distribution system programmers and consultants.

EG3363
Media & Multicasting Systems [60 hours]
This module provides students with knowledge in the design and implementation of audio-video streaming, conferencing and broadcast systems and solutions. Coverage includes needs assessment, creating functional requirements and developing technical requirements of conferencing, streaming & broadcast systems. Upon completion of the module, students will be able to adapt and enhance media, select transmission schemes, as well as design and implement systems and solutions for a wide range of applications.

EG3364
AV Systems Project [60 hours]
This module develops students’ ability to design, plan, deploy and manage integrated audio, video, lighting, broadcast and control systems for indoor and outdoor settings. This module is essential for prospective audio-visual system designers, system integrators and consultants.

EG3365
Internship Programme [24 weeks]
This module enables students to put into practice the knowledge and skills they have acquired from the course in real-life work environments. The students will be assigned work tasks or projects, with clear learning outcomes that are relevant to their courses and intended job roles, during the internship. The students will be guided by mentors from the industry and NYP to help them perform on the job and to achieve the learning outcomes. This will allow students to gain work-centred knowledge and skills, and work-related experiences. In addition, they will acquire important work values and ethics which include being responsible and positive, as well as taking initiative and exercising integrity. Through this work-based experiential programme, students will be better prepared for work and life.

EG3366
Lighting Technologies & Systems [60 hours]
This module provides students with the knowledge and skills required to design and implement solutions for entertainment and architectural lighting systems. Students will understand visual perception, lighting technologies & systems, lighting controls & management and design considerations & architectures. Expertise acquired in this module is valuable for lighting system designers and integrators, lighting programmers and lighting consultants.

EG3367
IC Layout Design Project [60 hours]
This module covers the technologies and design methodologies of integrated circuits. Topics include: MOS circuits, the design of digital and analogue subsystems, layout techniques and design methodologies. Students will be able to apply the knowledge and skills using appropriate techniques in designing integrated circuit subsystems with CAD tools.

EG3368
Automation Systems & Applications [60 hours]
This module provides students with the knowledge and skills required to design and implement an automation system. Topics include application of sensors and transducers, sensors and actuators interface, networking of sensors and actuators to enable Internet of Things implementations, fieldbus technology, data acquisition, programming of controller and system troubleshooting.
EG3369
Embedded System Design & Technology  [60 hours]
This module builds an understanding of the design and
development process of embedded systems that form the
computing core of many intelligent solutions. Students will learn
the practical skills in embedded systems development and design
methodologies including design requirements and considerations.
The module also covers various embedded system’s applications,
arquitecture and interfacing technologies. Such an understanding
is valuable for application developers and system designers.
These skill sets and knowledge will provide students with the
techniques for design and development which can be applied in the
development of an embedded system.

EG3370
Wireless Communications and Networking  [60 hours]
This module covers system design considerations for wireless
products, as well as radio environment considerations such as
propagation, uplink and downlink issues. Students will learn to
design and use test and measurement equipment to perform
system characterisation and validation of performance on
different wireless systems for deployment. The importance and
relationship of antenna and electromagnetic compatibility (EMC)
in product design will also be covered. This module will also
provide a basic coverage of theory and practices on methods of
achieving high reliability in products and processes that are
necessary for technology and engineering management with
examples from the electronics industry.

EG3371
Smart Connected System Project  [60 hours]
This module integrates knowledge and skills acquired in the
wireless and embedded technology to implement an Internet
of Things (IoT) application. The module also covers the technical
aspect of project management; in particular, issues related to the
organisation, planning, realisation and control of projects.

EG3372
Smart Device Applications  [60 hours]
This module develops a comprehensive understanding of the
design and development of software applications on smart
devices that include smart phones, tablets and IoT edge devices.
Topics covered include web services, device connectivity and
cloud platforms that form a crucial part in the architecture of a
connected solution. It focuses on development of knowledge and
skills to develop applications that interface to cloud services for
control and data visualisation.

EG3373
Sensors & Actuators  [60 hours]
This module covers sensors and actuators technology and their
applications in connected systems design. Hardware and firmware
development using open hardware platform for signal conditioning
such as the transformation of sensor data into information for
intelligent operations and decision support will be emphasised.
Students will learn the selection criteria of sensors and actuators
through application case studies from different vertical industry.

EG3374
Operations Management  [60 hours]
This module covers the principles of operations management.
Students will learn concepts and techniques for planning, designing
and managing operations for the manufacture and delivery of
goods and services to meet customers' needs and organisational
objectives. Topics covered include capacity and inventory
management, and quality management and process improvement.
Case studies on optimising operations efficiency and effectiveness
in the electronics industry will be covered.

EG3375
Essentials of Marketing & Sales  [60 hours]
This module covers the essentials of marketing and sales concepts,
and develops students’ ability to identify the customer’s needs and
deliver appropriate solutions. Students will learn how to integrate
the elements of marketing mix to produce an effective marketing
plan, and apply the techniques of professional selling. Concepts
will be reinforced through role-plays and case scenarios.
EG3376
Supply Chain Management [60 hours]
This module covers the design, control, operation and management of supply chain systems, including procurement, movement and storage of raw materials, work-in-process inventory and finished goods from point-of-origin to point-of-consumption. The module also emphasises the effect supply chain management and digitisation have on the competitiveness of the organisation.

EG3377
Product Design & Evaluation [60 hours]
In this module, the students will be taught sustainable design principles, conceptual problems, and the importance of design for environment (DfE). They will learn how to test and evaluate the system or components by comparing requirements and specification.

EG3378
Internet of Things & Applications [60 hours]
This module covers the architecture, design and deployment of smart connected systems. It develops knowledge and skills which can be used to deploy real-world solutions in many areas of applications in the Internet of Things (IoT). Topics include smart sensors and devices, sensor and device network, and the gateway that links to the cloud for processing and storage. The skill sets and knowledge acquired will enable students to deploy smart connected systems that form an essential part in the architecture of the IoT.

EG3650
Overseas Internship Programme [24 weeks]
This module enables students to put into practice the knowledge and skills they have acquired from the course to develop solutions for real-life applications. Projects and/or jobs will be assigned to students who will work under the mentorship and supervision of experienced staff at a company to develop and produce the desired job and project deliverables. In addition to equipping students with technical and soft skills for project development, this module will enable them to develop problem-solving skills, instil the habit of lifelong learning and develop a global mindset to prepare them for entry into the workforce.