

Aerospace Option

Aerospace electronics are used in modern aircraft such as Airbus A380, Boeing 787, F15 and F16 fighter jets for flight control, flight instruments, communication, navigation and power generation. This option will cover the working principles and operations of these aircraft electronic systems.

Training facilities include a full-sized Airbus A320 cockpit to provide realistic maintenance and flight simulation. A new Aero Hub on SP campus will be ready in 2015 for conducting Aerospace R & D activities and aircraft maintenance training.

An Aerospace Technologist with DEEE background will find challenging job opportunities in the repair and maintenance of fighter jets, helicopters and transport aircraft in either military related aerospace companies, Republic of Singapore Air Force or civilian airlines, like SIA, Tigerair, etc.

Biomedical Option

The biomedical engineer and technologist works with other health care professionals including physicians, nurses, therapists, and technicians. They may be called upon in a wide range of capabilities: to design instruments, devices, software, and algorithms, to bring together knowledge from many technical fields to develop new procedures, or to conduct research needed to solve clinical problems.

Biomedical instrumentation is the application of electronics, instrumentation and measurement techniques to develop devices for diagnostic and therapeutic medical applications. This often involves the interface of instruments with computer systems and customized software for instrument control, data acquisition and analysis.

Business Option

The purpose of taking up this Business option is to enable one to market their product is the most effective way. Marketing is the process of communicating the value of a product to customers, for the purpose of selling the product which can be goods or services.

An understanding of the principles and techniques of personal selling and sales management will be covered. Key topics of selling such as the right approach to prospecting, making a convincing sales presentation, meeting objections correctly, and closing a sale are included. In the sales management component of the module, topics covered will be to analyse the sales environment, do a sales plan, organise a sales force, forecast sales and design a sales compensation scheme.

Communication Option

The Communication Engineering specialisation prepare students for careers in the research, design, integration, installation, operation and maintenance of wired and wireless communications systems. There are also R&D career openings in Communication Engineering in research centres such as IME (Institute of Microelectronics), Institute for Infocomm Research (I2R), Defence Science and Technology Agency (DSTA), DSO National Laboratories, and research centres set up by MNCs.

Some of the companies that hire graduates trained in this area includes those in the Microelectronics, Consumer Electronics Industry, Communication and Broadcasting Companies, such as Singapore Telecom, M1, Starhub, Singapore Technologies, Agilis Communication, Thomson Multimedia, Motorola, Lucent Technologies, Siemens, NEC, HP, Agilent, OKI, Sony, Matsushita, Philips, Panasonic Audio/Video Research Labs, Philips, NEC, Fujitsu, HP, Agilent, OKI, Unisys, IBM, Gemplus, Siemens- Communication etc.

Computer Option

The “new” knowledge-based economy is powered by computers. Computers are used virtually in all businesses, ranging from multinational corporations, local small and medium enterprises, government ministries, educational institutions, and financial institutions to service and manufacturing industries, heavily rely on computer systems for their day-to-day operations and business transactions.

Computer engineers can work as a software engineer, system analyst, system administrator, application programmer, database administrator in financial institutions, government ministries, statutory boards, manufacturing industries, telecommunication companies, defence industry, service industries, and digital media industry. They can also choose to start your own company as the start-up cost is low and IT out-sourcing is becoming popular.

Electrical Option

Over the past few decades, the demand for electrical engineers around the world has been very steady. It can be easily appreciated that reliable and economic electricity supply is highly desirable. Electrical power supply is vital for maintaining high standards of living in a society and for supporting Singapore's as well as the Region's fast expanding economy. Electrical control and instrumentation engineering is an integral part of the manufacturing, environmental, petrochemical and pharmaceutical industries in Singapore. Automation is being employed in almost all manufacturing processes.

Electrical Engineers are involved in the development of a product at any stage of its life cycle, including commencing from market research to delivery, commissioning, maintaining, research, design, development, production, testing, quality control, etc.

Electronic Option

The demand for delivering faster, smaller, portable and highly reliable integrated circuit (IC) chips is what drives the semiconductor market. It has evolved and expanded into one of the critical foundations, which renders immense impact to the global economy. The high momentum developed in the direction of low-voltage low-power has created a trend sustained and being fuelled by the strong demand from the field of portable electronics in general, and the mobile and wireless communications market in particular.

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Microelectronics Option

Every advanced product nowadays, whether it is for communication, data storage and processing, household electronics appliances, electronic games, biomedical devices etc., contains one or more sub-components and microsystem, e.g. integrated circuits, magnetic and optical read-write head for data storage devices, movement-sensors in VR games, DNA chips, flash memory in hand phones, image sensor in digital cameras etc., that are fabricated using the microelectronic technology. In addition, microelectronics and microfabrication technology are increasingly being employed in cross-disciplinary microsystem applications like the micro-sensors and biosensors.

Some of the tasks done by graduates in this specialisation includes:

- performing equipment set-up and equipment improvements to achieve maximum throughput and utilization
- leading a team to achieve production, quality and productivity targets
- purchasing equipment for start-up or upgrades
- performing cost analysis and providing recommendations to management
- performing supplier/services selection
- analysing and planning material requirements to support production loading
- conducting regular line audits to ensure manufacturing process conformance to specification
- providing technical support to production and assembly equipment
- testing of wafer
- assembly and testing of advance integrated devices

Power Option

Power engineers and technologists are mainly concerned with the generation, transmission, distribution and utilization of electrical energy. Their main tasks are to plan, design, install, test, commission, operate and maintain power equipment and networks ranging from high transmission-level voltages to the single-phase household voltage of 230V. Reliable design and implementation of power projects, incorporating state-of-the-art technologies and engineering skills, ensure that the network and equipment are safe for operating personnel as well as for society. The electricity supply system must be of the highest quality such that the economic activities of the nation are duly supported.

Power engineering is a multi-billion dollar industry offering graduates a challenging career with excellent job satisfaction. With appropriate professional experience, a power engineering student can look forward to attaining the Licensed Electrical Worker (Technicians Grade) status within a few years of his/her graduation.

Rapid Transit Technology Option

Rail network in Singapore is expected to double by year 2030. This option equips students with technical skills and knowledge to take on rail engineering positions such as Assistant Engineer or frontline roles such as Station Managers, Chief Controllers, and Train Service Controllers.

It is developed in collaboration with SMRT Institute. Authentic learning is emphasized and you have the opportunity to go for one semester of immersion at SMRT where you will receive further training to work on an impactful project. When you graduate, you will have an advantage for jobs in train industry. The expansion of rail lines both locally and in the regions provides ample job opportunities.

Robotics & Control Option

Robotics and Control engineering is an integral part of the manufacturing, environmental, petrochemical and pharmaceutical industries in Singapore. Automation is being employed in almost all manufacturing processes. Technologists, trained in robotics and control engineering, are needed to improve their productivity and competitive edge, to work in the best possible ways: in performance, robustness, intelligence, flexibility and precision.

In Singapore, or elsewhere in the world, a robotics and control engineer can find relevant employment in the following areas:

- Aerospace Industries
- Biotechnology
- Chemical Processes
- Defence Industry
- Electronic Industries
- Industrial Automation
- Instrumentation and Measurement
- Manufacturing Processes
- Medical Instrumentation
- Oil Refineries
- Pharmaceutical Processes
- Robotics
- Satellite-Tracking Stations
- Waste Water/Chemical Treatment, etc