Think Bigger with SP
Mission
A future-ready institution that prepares our learners to be life-ready, work-ready and world-ready.

Vision
A caring community of inspired learners committed to serve with mastery.

Core Values
Self-Discipline / Personal Integrity / Care and Concern / Openness / Responsibility / Excellence
How to use this prospectus?

The Singapore Polytechnic Prospectus is divided into two parts.

Part 1 presents general information about Singapore Polytechnic, campus services available and its facilities. You will also find information about life on campus including the various programmes and activities that make life as a polytechnic student challenging and fulfilling. It contains useful information for international students as well.

Part 2 has details of all full-time and part-time courses offered by Singapore Polytechnic. Entry requirements, fees and how you should apply are found here.
About Singapore Polytechnic

Students are our focus at Singapore Polytechnic (SP). Established in 1954 as Singapore’s first polytechnic, we have been fulfilling our mission of educating our students to excel in work and life, and to equip adult learners with professional skills and knowledge.

In 2014 we celebrated 60 glorious years as an institution, and with it, a new direction for the future. We have crafted a new vision to carry us beyond 2014: a vision to nurture the future. We have crafted a new vision to carry us beyond 2014 a vision to nurture and develop the future. We have crafted a new vision to carry us beyond 2014 a vision to nurture and develop our students to excel in work and life, and to equip adult learners with professional skills and knowledge.

QUALITY EDUCATION

SP maintains high academic standards, driven through our passionate staff who serve with mastery. Curriculum proposals are examined in detail to ensure relevance and satisfactory course delivery. Courses are also monitored and evaluated for continuous improvements, reviewed with valuable feedback from the industry, graduates and students. Out-of-classroom learning opportunities are also available, in the form of industry attachments, student exchanges and study trips, both local and overseas.

Two-thirds of our graduates move on to earn degrees at local and foreign universities, including top institutions such as Harvard University, Massachusetts Institute of Technology and Imperial College London. Our diplomas are widely recognised by over 150 universities worldwide, many of which grant advanced standing or credit exemptions to our graduates.

ENRICHING CAMPUS ENVIRONMENT

Easily accessible by public transport, with Dover MRT station right at its doorstep, SP campus conducive for learning and socialising. State-of-the-art facilities at SP include studio-based learning facilities, living laboratories which provide real-life and immersive learning opportunities, and two libraries. The campus is supported by an integrated digital environment — comprising of campus-wide high-speed Gigabit Ethernet and Wireless LAN networks — for students to access information and e-services for effective learning.

SP is self-sufficient with six food courts, a variety of retail shops, and a bank. Adding vibrancy to campus life are the many recreational and sports facilities, including gymnasiums, an Olympic-size swimming pool and the Sports Arena, a dedicated sports facility with an outdoor rock climbing wall and numerous badminton, basketball, squash and tennis courts. There is also the Student Hub@Moberly, a popular chill-out venue with music jamming studios, dance studios and a café.

SP FOR LIFE

As part of the SP family, you would have established a lifelong link with us. Our Department of Student Development and Alumni Relations, SP Graduates’ Guild and individual schools maintain close contact with more than 195,000 alumni, many of whom are now successful academics, captains of industry and entrepreneurs.

We encourage you to make the most of your time at SP so that by the time you graduate, you will be life-ready, work-ready and world-ready.

With SP, It’s So Possible.

Campus Services

Singapore Polytechnic’s (SP) journey towards a Smart Digital Campus began with the introduction of computer-based learning and computer literacy in the 1980s. Today, SP’s Smart Poly Vision is to transform our campus through the creative use of technology in 5 areas:

- Smart Teaching and Learning that transforms education with Next Generation Learning Environment
- Smart Workplace that transforms the way we work to enhance productivity and efficiency
- Smart Facility Management that transforms building management, service delivery and operations
- Smart Customer Service that provides data driven and personalised services
- Delightful User Experience that provides users with an intelligent and friendly campus environment.

SP’s high-speed campus network provides the SP community with seamless connectivity and mobility to a platform of IT services that puts “Teaching and Learning”, “Working” and “Lifestyle” convenience at their fingertips. Leverage on the use of smart technologies such as learning analytics, online teaching and collaboration platforms, lessons delivered to students are not only engaging but personalised to improve their learning outcome. Students are able to access these lessons and collaborate with their peers and lecturers real-time from anywhere and at any time. Location-based technologies are also implemented to support delivery of personalised services e.g. real-time push notifications, library book recommendations and navigation around the campus and to locate less crowded study spaces and dining areas on campus.

Information & Digital Technology Services

SP’s Department of Information & Digital Technology (INDT) Services strives to provide comprehensive IT services that are capable of meeting the ever changing and demanding needs of SP’s staff and students.

By offering an agile digital environment, our staff and students are able to have better and faster access to information and e-services.

They are also able to communicate and collaborate with each other better and to learn, teach and work with greater effectiveness and efficiency.
The Department of Industry and Partnerships (I&P) plays a pivotal role in fulfilling the Polytechnic’s mission to prepare our students to be life-ready, work-ready and world-ready.

This is achieved by providing a holistic approach to the students’ learning journey through the Internship programme and other industry-related initiatives.

I&P leads the Polytechnic to engage industry partners to give our students opportunities for real world learning. The services provided by I&P are as follows:

1. It serves as one-stop resource centre for industry partners that are keen to collaborate with SP.
2. It administers the Internship programme that aims to let students learn through meaningful work assignments and industry exposure to deepen and apply both technical and soft skills, and help them make better career choices.
3. It helps in the implementation of SkillsFuture initiatives such as the Earn & Learn Programme. Enhanced Internship Programme and Sector Coordination by collaborating with the academic schools, relevant departments, industry partners and government agencies.
4. It organises activities to cultivate & nurture entrepreneurial learning and mind-sets among the SP community.

In these spaces and other reading areas, students have access to a core collection of books and multimedia on engineering and technology, design and architecture, health and life sciences, maritime studies, management and lifestyle interests.

At Hilltop Library: resources on business, IT and digital media, and communication, arts and social sciences are provided to support the schools teaching courses in these areas. The compact yet comfortable library is surrounded with lush greenery, and offers project pods and meeting rooms.

Learning also takes place in the libraries through activities like talks by lecturers and industry experts. Workshops on making, such as 3D printing and scanning, tinkering with electronics kits, 3D design, photo editing and video making are conducted in the Makerspace. In display spaces, students exhibit their projects, ideas and achievements to the campus community.

The Library is a key learning hub on campus. As a companion to SP’s progressive pedagogies, it provides vital connections to information, people, ideas and spaces that inspire lifelong learning through independent discovery. Students will find creative spaces and the freedom to explore ideas in the Library. From 3D printers to specialised databases, SP librarians curate up-to-date resources to create rich learning experiences for users.

**LEARNING SPACES**

At the Main Library, students are welcomed to a variety of learning spaces such as:

- Makerspace and FabLab – where technologies, equipment and tools such as laser cutter and 3D printers are available for students to tinker, experiment, create and learn from making. Resources include Arduino, Raspberry Pi, IoT kits, and other DIY electronics kits. For more information, please visit [library.sp.edu.sg](http://library.sp.edu.sg).
- Da Vinci Level – provides resources on architecture and design, facilities such as pods with projectors, writable tables and walls, and exhibition space.
- Project Pods – where students collaborate and discuss projects.
- Quiet Zone – for independent quiet study and reflection.
- Programme Zone and Event Box – for sharing and learning through talks and workshop activities.
- Exhibition Zone – for thematic displays and showcasing projects from students and Schools and Innovations from industries.
- Colours Zone – an informal space for students to socialise, play board games, conduct group discussions and also serves as exhibition and event space.

**INFORMATION ANYTIME, ANYWHERE**

An extensive collection of electronic and physical resources may be viewed from the library website ([library.sp.edu.sg](http://library.sp.edu.sg)). These resources support all courses taught as well as encourage the personal development of students. Using this collection coupled with the latest technology, mobile friendly information services are brought to users wherever they may be or whatever device they use. Highlights include:

- OneSearch, a search engine which enables users to search the catalogue and the Library’s electronic resources at one go. Access to e-resources including e-books, e-journals, e-videos, databases, student project reports and past exam papers, is available 24/7 from any location with Internet access.
- Access to library resources for course modules is integrated with the campus course management system.
- Various communication channels, including an online chat service, which lets students request for help.
- Updates on the latest library resources and activities via social media like Instagram, Facebook, Twitter, and YouTube.

**Library**

**LEARNING SPACES**

At the Main Library, students are welcomed to a variety of learning spaces such as:

- Makerspace and FabLab – where technologies, equipment and tools such as laser cutter and 3D printers are available for students to tinker, experiment, create and learn from making. Resources include Arduino, Raspberry Pi, IoT kits, and other DIY electronics kits. For more information, please visit [library.sp.edu.sg](http://library.sp.edu.sg).
- Da Vinci Level – provides resources on architecture and design, facilities such as pods with projectors, writable tables and walls, and exhibition space.
- Project Pods – where students collaborate and discuss projects.
- Quiet Zone – for independent quiet study and reflection.
- Programme Zone and Event Box – for sharing and learning through talks and workshop activities.
- Exhibition Zone – for thematic displays and showcasing projects from students and Schools and Innovations from industries.
- Colours Zone – an informal space for students to socialise, play board games, conduct group discussions and also serves as exhibition and event space.

**INFORMATION ANYTIME, ANYWHERE**

An extensive collection of electronic and physical resources may be viewed from the library website ([library.sp.edu.sg](http://library.sp.edu.sg)). These resources support all courses taught as well as encourage the personal development of students. Using this collection coupled with the latest technology, mobile friendly information services are brought to users wherever they may be or whatever device they use. Highlights include:

- OneSearch, a search engine which enables users to search the catalogue and the Library’s electronic resources at one go. Access to e-resources including e-books, e-journals, e-videos, databases, student project reports and past exam papers, is available 24/7 from any location with Internet access.
- Access to library resources for course modules is integrated with the campus course management system.
- Various communication channels, including an online chat service, which lets students request for help.
- Updates on the latest library resources and activities via social media like Instagram, Facebook, Twitter, and YouTube.

**Library**

**LEARNING SPACES**

At the Main Library, students are welcomed to a variety of learning spaces such as:

- Makerspace and FabLab – where technologies, equipment and tools such as laser cutter and 3D printers are available for students to tinker, experiment, create and learn from making. Resources include Arduino, Raspberry Pi, IoT kits, and other DIY electronics kits. For more information, please visit [library.sp.edu.sg](http://library.sp.edu.sg).
- Da Vinci Level – provides resources on architecture and design, facilities such as pods with projectors, writable tables and walls, and exhibition space.
- Project Pods – where students collaborate and discuss projects.
- Quiet Zone – for independent quiet study and reflection.
- Programme Zone and Event Box – for sharing and learning through talks and workshop activities.
- Exhibition Zone – for thematic displays and showcasing projects from students and Schools and Innovations from industries.
- Colours Zone – an informal space for students to socialise, play board games, conduct group discussions and also serves as exhibition and event space.

**INFORMATION ANYTIME, ANYWHERE**

An extensive collection of electronic and physical resources may be viewed from the library website ([library.sp.edu.sg](http://library.sp.edu.sg)). These resources support all courses taught as well as encourage the personal development of students. Using this collection coupled with the latest technology, mobile friendly information services are brought to users wherever they may be or whatever device they use. Highlights include:

- OneSearch, a search engine which enables users to search the catalogue and the Library’s electronic resources at one go. Access to e-resources including e-books, e-journals, e-videos, databases, student project reports and past exam papers, is available 24/7 from any location with Internet access.
- Access to library resources for course modules is integrated with the campus course management system.
- Various communication channels, including an online chat service, which lets students request for help.
- Updates on the latest library resources and activities via social media like Instagram, Facebook, Twitter, and YouTube.
Personalised services are also available to help busy users:
- Resource lists customised for students/staff according to their courses/modules.
- My Librarian - one or more librarians are assigned to each school, so that users may contact them directly for their information needs.
- Project Advisory Service - students working on projects may get help from librarians on appropriate information resources and citing of references.

User education is a key focus of the Library. From their first day on campus, the Library orientates new students to harness its full range of resources. Year 1 students are introduced to basic research skills and key scholarly or industry information sources through on-line information literacy module. Subsequently, they can continue to improve their information literacy skills through workshops, talks and consultations with their school librarians. This suite of instructional sessions is complemented by LibGuides co-ordinated by librarians to introduce relevant resources for modules and research interests.

Another focus of the Library is content curation. Acknowledging today’s environment where the information we encounter daily can be excessive and overwhelming, our librarians evaluate and curate the most useful information for our users. SP librarians provide advice and support to data information ranging from trend analyses to state of research reports, to assist users in navigating the information environment efficiently and confidently.

**SP MEMORY PORTAL**
The Library also runs the SP Memory Portal (mymemories.sp.edu.sg), an institutional initiative to collect and preserve the stories and memories of our polytechnic community. The thousands of stories and photos in this repository allow a variety of requests like purchase of new resources, articles, and information enquiries.

**DIGITAL TECHNOLOGY AND FACILITIES**
In addition to the variety of electronic resources available from the Library’s website, students are also provided opportunities to explore and adopt new technology. Facilities include PCs, Mass Photo Studio, Audio Recording Studio, One-Button Studio for recording video presentations, scanners, printers, digital media tools, and touchscreen TVs for browsing digital newspapers and magazines.

**LOAN SERVICES**
Borrowing and returning of library materials are quick and convenient with the use of self-service loan kiosks, books pick-up lockers and smart returns stations. A pick-up/transfer of materials service between libraries may be requested via the catalogue. Electronic forms are also available for a variety of requests like purchase of new resources, articles, and information enquiries.

**SOCIAL HUB**
Beyond its educational role, the library is also a social hub for all walks of students from different disciplines. Peers viewing a cross-disciplinary exhibition, making their first gadget, meeting friends for a board game, or simply rushing a group project – all these happen daily at the library and add to the buzz that makes it a campus hot spot.

We welcome all to join the lively community at SP Library. For more information, please visit: library.sp.edu.sg.

(Photo above: Working out project details at the Woodend Park.)

---

**Professional & Adult Continuing Education (Pace) Academy**

SP has been involved in Continuing Education and Training (CET) since 1979 and the Professional & Adult Continuing Education Academy or PACE Academy was set up in SP in 2009. PACE Academy is a multi-disciplinary CET Academy committed to providing quality CET programmes to Professionals, Managers, Executives and Technicians (PMEs). PACE Academy offers a variety of relevant courses, meeting the needs of the community of adult learners. It aspires to be a leading CET Academy in Singapore that transforms adult learners through innovative educational experiences.

Details of the courses offered can be found in the PACE website (http://ptdip.sp.edu.sg). Earn and Learn Programmes and Short Programmes, Workshops and Seminars. Details can be expected to receive up-to-date information about industry developments and latest trends.

PACE Academy also offers programmes with shorter durations catering to specific needs of individuals or organisations. Some of these programmes are funded by the Skills Development Fund (SDF). Some of these programmes are offered using the e-Learning mode through our e-Academy.

Online Programmes on ePACE Academy keeps moving in the forefront of e-Learning and this portal provides the focal point of our e-Learning efforts for the adult learners. There are several programmes from short courses such as Operationally Ready (ORD) boys and Professionals, Managers, Executives and Technicians (PMETs). PACE Academy also offers programmes with shorter durations catering to specific needs of individuals or organisations. Some of these programmes are funded by the Skills Development Fund (SDF). Some of these programmes are offered using the e-Learning mode through our e-Academy.

For more details of all our courses, please visit www.pace.sp.edu.sg.
Student Matters

SCHOLARSHIPS
Students can visit our website (www.sp.edu.sg/scholarships) for the latest information on the various scholarships, eligibility criteria and dates for application.

COUNSELLING SERVICES
Services available include individual counselling, group counselling, psychological assessments and referrals to external help agencies.

Students who need a helping hand or a listening ear in times of crisis or anxiety can make an appointment with our friendly counsellors via e-Services.

SPECIAL EDUCATIONAL NEEDS (SEN)
Students with SEN can visit the SEN Centre at block T17 level 2 for assistance on academic support, counselling, examination accommodations, assistive technology devices and campus accessibility. Appointments can be made via e-Services or in person at the SEN Centre.

FINANCIAL ASSISTANCE
Students in need of financial assistance can apply for various financial assistance schemes and bursaries. The SSC also manages a Needy Fund to help students in dire financial need.

Please visit our website (www.sp.edu.sg/financialassistance) for the latest information on the various financial assistance schemes available, eligibility criteria and dates for application.

OUTBOUND SERVICES
The Outbound Services (OS) unit provides administrative support for schools and students in their quest to foster a Global Orientation mind set. Students are given overseas attachment opportunities to gain invaluable insight to global, economic and social conditions; and to inculcate character building traits which they can apply to future work, business, and life.

The OS unit supports the schools by performing administrative functions for overseas academic programmes, which include procurement of overseas trip components, review of student’s applications, calculation of funding quota, etc.

In SP, students with outstanding academic results and excellent co-curricular activities (CCA) records are recognised with the award of scholarships.

Each year, up to 30 prestigious SP Engineering Scholars are offered to Year 1 students with excellent academic results, outstanding CCA records and strong leadership potential.

SP Scholars receive an annual sponsorship of $3,000 per year (renewable every year) and subsidies for enrichment programmes. In addition, SP Engineering Scholars are put through a series of development programmes and activities as part of the SPOT Programme.

SP SCHOLARSHIP
SP was the first polytechnic to offer this scholarship. Each year, up to 30 prestigious SP Engineering Scholars are offered to Year 1 students in our engineering courses with excellent academic results, stellar CCA records, strong leadership potential and a passion for engineering. SP Engineering Scholars will be identified for R&D attachments locally or overseas and attend engineering conferences and activities to keep abreast of developments in related fields.

SP Engineering Scholars receive an annual sponsorship of $3,000 per year (renewable every year) and subsidies for enrichment programmes. In addition, SP Engineering Scholars are put through a series of development programmes and activities as part of the SPOT Programme.

SP SPORTS AND ARTS SCHOLARSHIP
This category of scholarships recognises students who have excelled in or contributed to the sports and arts scene at the national level or higher.

Each scholarship consists of an annual sponsorship of $2,000 and is renewable over three years.

Please visit our website for the latest information on the various scholarships available, eligibility criteria and dates for application.

www.sp.edu.sg/scholarships
Student Matters

DEPARTMENT OF STUDENT DEVELOPMENT & ALUMNI RELATIONS (SA)

Student life at SP is about balancing between coursework and social experiences. SA nurtures a holistic development for its students and groom them into responsible, resilient and caring individuals through the arts, sports, community service, CCAs, leadership and international enrichment programmes. These activities develop life skills of students to ensure that they are ready for the future. After graduation, the alumnus continues to be part of the community that cultivates SP as a future ready institution.

CO-CURRICULAR ACTIVITIES

The provision of a balanced and well-rounded education is part of SP’s mission to educate and train our students to excel in work and in life. Good academic grades alone are an insufficient gauge of student quality.

Co-curricular Activities (CCAs) is an integral part of our education system and helps to develop soft skills such as creativity, leadership abilities, teamwork, flexibility, communication skills, resilience and an enterprising spirit.

ARTS

ARTS coordinate artistic expression in SP, ranging from the performing arts to community arts. Through our numerous arts and culture-based clubs, you can learn a new musical instrument or a new dance form. There are also plenty of opportunities to showcase your talents in our annual Arts Fiesta and participate in competitions, performances, arts and cultural exchange programmes overseas.

In addition, there are regular concerts and busking activities for students to demonstrate their craft.

LEADERS

LEADERS seek to develop a caring community of inspired leaders who are committed to serve with mastery. Our LEAP (Leadership) programme encompasses a suite of exciting camps, customised workshops and inspiring talks to develop you more effectively in the areas of personal, team and servant leadership. It is our strong conviction that there is a leader in you and we will partner you in your leadership journey as you progress through the foundation, intermediate and advanced level all the way to achieving the National Youth Achievement Award (NYAA).

GOSERVE

GoServe aims to develop students with a genuine desire to understand, care for and make a difference to the underprivileged community. The strong emphasis on contributing back to society and showing care and concern for the less privileged has resulted in numerous local and overseas community service projects spearheaded by our community service clubs and youth community leaders. We believe that every student has the capacity to serve and we encourage you to partner us in creating a caring and inclusive society.

SPORTS

From leisure participation to competitive achievement, SP Sports provides you with the platform and support to pursue your passion in sports. Through sports competitions (inter-varsity, inter-Poly-ITE, national and international events) and programmes (overseas exchanges, sports education workshops), we have over 40 sports clubs to choose from, and we facilitate opportunities for acquiring new skills and achieving sporting excellence.

Our Sports Education Programme develops well-rounded student-athletes who are competent in their sport as well as individuals with strong character and good values. Through advocating a CHAMPIONSHIP CULTURE of Commitment, Accountability and Ownership in customised programmes like mental skills and strength & conditioning clinics, time management and team building workshops, it is our belief that our student-athletes will not only contribute positively in their sport but back to the SP community and beyond.

ACTIVE

Besides sports excellence, SP also offers programmes to encourage students to lead an active and healthy lifestyle.

Sports for Life is a physical education programme where students may choose to pick up a new sport or further hone their skills in a particular sport of their choice while building their competencies and values like teamwork, communication, decision making, etc. The programme offers a wide array of sports like Yoga, Hip-Hop, Ultimate Frisbee, Rock Climbing, Swimming and Laser Tag.

Healthy Lifestyle Programme offers workshops and talks ranging from Self-Defence and K-Cards to Stress Management and Dental Care.

These programmes aim to help students develop passion for healthy living and equip them with knowledge and skill sets to lead a well-balanced and active lifestyle beyond the classroom.

GO GLOBAL

SP has student exchange programmes in places like Japan and Hong Kong. These programmes aim to broaden the students’ global perspective and appreciation of foreign cultures and languages. It also provides opportunities for students to establish friendships and learn more about the host country.

STUDENT UNION AND CLUB MEMBERSHIP

Full-time students are automatically ordinary members of the Students’ Union as well as the academic club of their school. Part-time students are associate members of the Students’ Union as well as the academic club of their school.

In addition to the Students’ Union and academic clubs, there are more than 100 student clubs and competitive sports teams to choose from. These are broadly categorised under arts & culture, interest groups, leadership & service learning and sports & adventure.

SCHOLARSHIPS AND AWARDS

Students who have represented Singapore at the combined schools or higher level in either sports or arts may apply for the SP Sports & Arts Scholarship and Awards. The Scholarship grants are worth up to $2,000 per academic year.

SPORTS FACILITIES

SP is well equipped with a wide range of indoor and outdoor facilities. These facilities include an Olympic-size swimming pool, a running track, multi purpose courts, multi purpose fields, a fitness gym, tennis courts, basketball courts and several aerobics/ dance studios. With a rock wall standing at 30m high, SP also boasts one of the highest rock wall facility in Singapore.

STUDENT HUB @ MOBERLY

The Student Hub is located in Moberly, the oldest site in SP. This historical building serves as a centre for students to engage in various recreational activities like jamming, dancing and playing pool. Students also get to enjoy facilities such as a café, dance studio, meeting and study areas.
Singapore Polytechnic (SP) has produced more than 200,000 graduates who have gone on to excel in their respective professions. Many of them are successful entrepreneurs, industry leaders and well-known professionals.

Connecting regularly with alumni and providing them with a platform to give back to their alma mater is an integral part of SA’s role in alumni engagement. Through social-oriented and developmental programs, alumni can seize opportunities to network, upskill and rekindle old ties with former lecturers and schoolmates.

The Alumni Interest Groups (AIGs) cater to the varied interests of alumni and allow them to connect with one another. The quarterly e-newsletter is an online platform which SA uses to maintain regular contact with its alumni.

Alumni can value-add to SP in the following ways:
- Conducting speaking engagements to share their industry experiences
- Mentoring their juniors
- Offering juniors with industrial training programme placement opportunities
- Volunteering and leading for many diverse local and overseas community service projects
- Collaborating on projects with technology and innovation centres
- Providing financial aid to students from humble backgrounds

For enquiries about student and alumni matters, please contact:

Singapore Polytechnic
Tel: 6775 1133
Email: contactus@sp.edu.sg
Website: life.sp.edu.sg

Connecting regularly with alumni and providing them with a platform to give back to their alma mater is an integral part of SA’s role in alumni engagement. Through social-oriented and developmental programs, alumni can seize opportunities to network, upskill and rekindle old ties with former lecturers and schoolmates.

The Alumni Interest Groups (AIGs) cater to the varied interests of alumni and allow them to connect with one another. The quarterly e-newsletter is an online platform which SA uses to maintain regular contact with its alumni.

Alumni can value-add to SP in the following ways:
- Conducting speaking engagements to share their industry experiences
- Mentoring their juniors
- Offering juniors with industrial training programme placement opportunities
- Volunteering and leading for many diverse local and overseas community service projects
- Collaborating on projects with technology and innovation centres
- Providing financial aid to students from humble backgrounds

For enquiries about student and alumni matters, please contact:

Singapore Polytechnic
Tel: 6775 1133
Email: contactus@sp.edu.sg
Website: life.sp.edu.sg

SP has a long tradition of welcoming international students. Each year, over 500 international students are admitted to a wide range of courses in SP providing the campus enrolment with rich cultural diversity and a stimulating learning environment.

Many international students are quick to seize the many opportunities and facilities available at SP to enjoy a truly rich and memorable student experience, several of whom have gone on to become student leaders, sportsmen and prize/medal winners.

We have a range of services to assist new international students to settle down to life in Singapore and SP. These include assistance with enrolment-related matters, international students orientation programme, mentoring scheme, social and recreational activities, as well as pastoral schemes and guidance support.

International students should contact the Student Service Centre upon, or even before, enrolment in the polytechnic for any assistance or information.

ADMISSIONS, FEES AND EXAMINATIONS

Please refer to the relevant sections in this Prospectus for more information on admission procedures, fees applicable to international students (including the provision of the Tuition Grant by the Singapore Government) and the examination system of the polytechnic.

IMMIGRATION – STUDENT’S PASS

International students must apply for a Student’s Pass from the Immigration & Checkpoints Authority (ICA) upon admission to the Polytechnic. New applications for a Student’s Pass must be submitted at least one month and not more than two months before the commencement of the course. Application must be done online through the Student’s Pass Online Application and Registration (SOLAR) system, on the ICA’s website (www.ica.gov.sg).

IMPORTANT — Please refer to the ICA website for full details on the SOLAR procedures and applicable fees.

Successful applicants will be issued with an In-Principle-Approval (IPA) letter by ICA through the polytechnic. For applicants who require a visa to enter Singapore, a visa will be incorporated in the IPA letter. Such students need not apply for a separate visa and may enter Singapore by producing the IPA letter at the checkpoints.

For enquiries about student and alumni matters, please contact:

Singapore Polytechnic
Tel: 6775 1133
Email: contactus@sp.edu.sg
Website: life.sp.edu.sg

Connecting regularly with alumni and providing them with a platform to give back to their alma mater is an integral part of SA’s role in alumni engagement. Through social-oriented and developmental programs, alumni can seize opportunities to network, upskill and rekindle old ties with former lecturers and schoolmates.

The Alumni Interest Groups (AIGs) cater to the varied interests of alumni and allow them to connect with one another. The quarterly e-newsletter is an online platform which SA uses to maintain regular contact with its alumni.

Alumni can value-add to SP in the following ways:
- Conducting speaking engagements to share their industry experiences
- Mentoring their juniors
- Offering juniors with industrial training programme placement opportunities
- Volunteering and leading for many diverse local and overseas community service projects
- Collaborating on projects with technology and innovation centres
- Providing financial aid to students from humble backgrounds

For enquiries about student and alumni matters, please contact:

Singapore Polytechnic
Tel: 6775 1133
Email: contactus@sp.edu.sg
Website: life.sp.edu.sg

SP has a long tradition of welcoming international students. Each year, over 500 international students are admitted to a wide range of courses in SP providing the campus enrolment with rich cultural diversity and a stimulating learning environment.

Many international students are quick to seize the many opportunities and facilities available at SP to enjoy a truly rich and memorable student experience, several of whom have gone on to become student leaders, sportsmen and prize/medal winners.

We have a range of services to assist new international students to settle down to life in Singapore and SP. These include assistance with enrolment-related matters, international students orientation programme, mentoring scheme, social and recreational activities, as well as pastoral schemes and guidance support.

International students should contact the Student Service Centre upon, or even before, enrolment in the polytechnic for any assistance or information.

ADMISSIONS, FEES AND EXAMINATIONS

Please refer to the relevant sections in this Prospectus for more information on admission procedures, fees applicable to international students (including the provision of the Tuition Grant by the Singapore Government) and the examination system of the polytechnic.

IMMIGRATION – STUDENT’S PASS

International students must apply for a Student’s Pass from the Immigration & Checkpoints Authority (ICA) upon admission to the Polytechnic. New applications for a Student’s Pass must be submitted at least one month and not more than two months before the commencement of the course. Application must be done online through the Student’s Pass Online Application and Registration (SOLAR) system, on the ICA’s website (www.ica.gov.sg).

IMPORTANT — Please refer to the ICA website for full details on the SOLAR procedures and applicable fees.

Successful applicants will be issued with an In-Principle-Approval (IPA) letter by ICA through the polytechnic. For applicants who require a visa to enter Singapore, a visa will be incorporated in the IPA letter. Such students need not apply for a separate visa and may enter Singapore by producing the IPA letter at the checkpoints.

For enquiries about student and alumni matters, please contact:

Singapore Polytechnic
Tel: 6775 1133
Email: contactus@sp.edu.sg
Website: life.sp.edu.sg
ESTIMATE OF LIVING EXPENSES
Living expenses vary according to individual lifestyles and means. The figures indicated above are estimates and serve as a reference only.

ARRIVAL IN SINGAPORE AND GETTING TO SP
Once accepted by the polytechnic, all international students may refer to the Enrolment e-Guide. Information and advice on student services such as insurance, financial assistance, EZ-Link card and counselling that the Student Service Centre provides can be found in the e-Guide.

ACCOMMODATION
Students may refer to the Classified Advertisements in the local Straits Times newspaper or various online websites for rooms to rent. Accommodation costs vary according to geographical area, type of accommodation, demand, facilities provided and the number of people sharing a room.

As there is a strong demand for accommodation and available units are taken up very quickly, students are advised to arrive as early as possible to secure their accommodation.

GROUP HOSPITALISATION AND SURGICAL INSURANCE
All full-time international students pursuing a diploma course in SP are required to purchase the Group Hospitalisation and Surgical Insurance Scheme arranged by the Student Service Centre. The premium is estimated at $34 per year. The scheme includes 24-hour worldwide coverage with maximum limit of $30,000 per policy year. Further details on the benefits and exclusions may be obtained from SP website.

PART-TIME/FULL-TIME WORK
Full-time diploma students are allowed to work part-time up to 16 hours per week during school term, and work full-time during vacation as the Ministry of Manpower has exempted them from applying for work permits. There is no necessity to obtain any permission from the polytechnic.

COUNSELLING SERVICES
As a student in a new country and learning environment, there may be times when there is a need for empathetic support and informed advice. Counselling offers the opportunity to work through your concerns and anxieties. All discussions are confidential unless consent is given for others to be involved. International students are encouraged to approach the Student Counsellors at the Student Service Centre should the need arise.

SP INTERNATIONAL STUDENTS’ CLUB
As an international student, you should make it a point to join the International Students’ Club (ISC). The ISC is made up of SP students of different nationalities and aims to provide a platform for international students to meet fellow students from the same country, befriended students from other countries, and integrate with local students and local communities. Aiding ISC will help you learn more about local cultures and settle down faster to life in Singapore and SP.

Contact ISC at:
Email: spisc.adm@gmail.com
Facebook: https://www.facebook.com/spisc or simply search SP International Students’ Club

APPLICATION FORM ADMISSION
All applications must be submitted during the period prescribed. Applicants are personally responsible for providing accurate and complete information in their applications.

Successful applicants will have to present the originals of all educational and other appropriate documents for verification purposes at the enrolment exercise.

The acceptance of an application does not constitute any commitment by the Polytechnic to admit any candidate to a course in SP.

Successful applicants must accept the offer of admission within the period specified in the letter of offer, otherwise the offer is deemed to have lapsed and the vacancies would be offered to other applicants. SP may withdraw such an offer of admission to any applicant or de-register a student who has made a false statement or withheld any information in his application for admission or during his enrolment.

Selection for admission lies solely within the discretion of the Polytechnic. SP also reserves the right to withdraw any course.
FULL-TIME COURSES

1. FULL-TIME DIPLOMA COURSES
The following full-time courses are offered to students who are able to devote their time to studying and who are not attending any part-time courses or engaged in any employment, for remuneration or otherwise.

OTHER REQUIREMENTS AND CONDITIONS
a) Aeronautical Engineering and Aerospace Electronics Courses
It should be noted that applicants particularly those who wish to pursue a career as a Licensed Aircraft Engineer (LAE) who have severe colour vision deficiency, uncontrolled epilepsy and hearing deficiency may encounter difficulties meeting the course requirements and expectations. Interested applicants with mild deficiencies in these areas are advised to contact SP for consultation.

b) Electrical & Electronics Engineering Course
It should be noted that applicants, particularly those who wish to pursue a career in electrical power engineering or as a Local Electrical Worker (LEW), with colour vision deficiency may encounter difficulties meeting the course requirements and expectations. As normal colour vision is required by the Energy Market Authority (EMA) of Singapore. Those with mild colour deficiency are required to undergo an in-house test. Interested applicants with this condition are highly encouraged to contact SP for more information.

c) Marine Engineering Course
All candidates must pass the colour vision test as per The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW). All candidates will be required to attend an interview conducted by the Singapore Maritime Academy. International students are required to find a Singapore shipping company of their choice that is prepared to offer them an internship for Phase 2 of this course.

d) Optometry Course
Applicants with severe vision impairment may encounter difficulties meeting the course requirements and expectations. Please refer to the Ministry of Health (MOH) website on ‘Fitness to Practice’ for registered Optometrists. Interested applicants with this condition are highly encouraged to contact SP for more information.

A. SINGAPORE-CAMBRIDGE GCE ‘O’ LEVEL HOLDERS
The courses are of three-year duration. Applicants must offer the combination of subjects, as shown in the entry requirements table taken at not more than two sittings of the Singapore-Cambridge GCE ‘O’ Level examinations.

Entry Requirements for Full-Time Diploma Courses (Singapore-Cambridge GCE ‘O’ Level / SPM / UEC)
See Tables 1A & 1B.

B. SINGAPORE-CAMBRIDGE GCE ‘A’ LEVEL HOLDERS
Applicants with GCE ‘A’ Level qualifications who meet the entry requirements stipulated can be considered for direct entry into the second year of the appropriate three-year course, with bridging modules offered when deemed necessary by the School concerned. Applicants must offer the combination of subjects, shown in Table 2, taken at not more than two sittings of the same GCE ‘A’ Level Examination. For all other courses, GCE ‘A’ Level holders may apply for three-year courses together with GCE ‘O’ Level holders. The number of places offered depends very much on the vacancies in the existing courses.

Entry Requirements for Full-Time Diploma Courses (Singapore-Cambridge GCE ‘A’ Level / STPM / UEC)
See Table 2.

c) Nautical Studies Course
Students who have completed IP Year 4 (or Sec 4 equivalent) as well as those who have graduated from IP schools with IB / GCE ‘A’ Levels are encouraged to produce research results as well as IB / GCE ‘A’ Level results (if applicable) and recommendations (if any). Candidates may be required to undergo tests and / or interviews. Those who have not taken the GCE ‘A’ Level may apply upon the release of the GCE ‘O’ Level results in mid-January 2019 (coincides with the JAE).

D. EARLY ADMISSIONS EXERCISE (ITE)
Applicants who have obtained the relevant Nitec with GPA 3.5 and above may apply for admission to the three-year full-time courses appropriate to their ITE qualification.

E. HIGHER NATIONAL ITE CERTIFICATE (HIGHER NITEC) HOLDERS
Applicants who have obtained the Higher National ITE Certificate (Higher Nitec) with Grade Point Average (GPA) 2.0 and above may apply for admission to the three-year full-time courses appropriate to their ITE qualification.

F. INTERNATIONAL QUALIFICATION HOLDERS
Applications from international qualification holders will be assessed based on their equivalence to the General Certificate of Education (GCE). Evidence of English Language proficiency will be required.

Applicants with qualifications from countries not listed in Table 6A are also invited to apply.

B. POLYTECHNIC FOUNDATION PROGRAMME
SINGAPORE-CAMBRIDGE GCE ‘N’ LEVEL HOLDERS
The Polytechnic Foundation Programme (PPF) is specially designed for top students of the ‘N’ Level (Academic) cohort. Instead of continuing with the ‘O’ Level examination in Secondary 5, students can join SP under this foundation programme to prepare themselves for their pre-selected diploma course. The PPF is a one-year full-time programme. Applicants must offer the combination of subjects as shown in the entry requirements table taken at the Singapore-Cambridge GCE ‘N’ Level examinations.

The entry requirements are given in Table 7.

ADMISSION EXERCISES

A. JOINT ADMISSIONS EXERCISE (JAE)
The Joint Admissions Exercise (JAE) applies to fresh Singapore-Cambridge GCE ‘O’ Level school leavers applying for admission to full-time diploma courses at SP. This JAE is coordinated by the Ministry of Education (MOE).

Information concerning the courses available and instructions for completion of the application can be found in the JAE 2019 Information Booklet. The booklet, published by MOE, is issued with Form A and is available from your secondary school.

Applicants can submit their online applications at SP’s e-application can be found in the JAE 2019 Information Booklet. The booklet, published by MOE, is issued with Form A and is available from your secondary school.

Applicants are to submit their online application via https://jae.polytechnic.edu.sg.

C. JOINT POLYTECHNIC ADMISSIONS EXERCISE (JPAE)
The Joint Polytechnic Admissions Exercise (JPAE) is for applicants with the following qualifications:

a) Higher Nitec qualification with GPA 2.0 and above; and
b) Nitec qualification with GPA 3.5 and above.

Applicants are to submit their online application via https://jpe.polytechnic.edu.sg.

D. EARLY ADMISSIONS EXERCISE (ITE)
The Early Admissions Exercise (ITE) (EAE)[1] is opened to ITE students and those who have obtained the relevant Certificate of Education (GCE) Level whose results will be released by January 2019 (coincides with the JAE).

Applicants must offer the combination of subjects appropriate to their ITE qualification.

Applicants are to submit their online application via https://iae.polytechnic.edu.sg.

E. DIRECT ADMISSIONS EXERCISE (DAE)
The Direct Admissions Exercise (DAE) is for those wishing to apply for:

FULL-TIME DIPLOMA COURSES:

1) From local Singapore schools under Ministry of Education (MOE) mainstream School System;
• in Integrated Programmes (IP) who have completed IP Year 4 (or Sec 4 equivalent) and those who have graduated from IP schools with IB / GCE ‘A’ Levels are encouraged to produce research results as well as IB / GCE ‘A’ Level results (if applicable) and recommendations (if any)
• Candidates may be required to undergo tests and / or interviews. Those who have not taken the GCE ‘A’ Level may apply upon the release of the GCE ‘O’ Level results in mid-January 2019 (coincides with the JAE).
• Those who have taken GCE ‘A’ Level whose results will be released later (February / March) may apply for admission to the appropriate full-time courses appropriate to their ITE qualification.

2) From all local institutions
• with GCE ‘O’ Level holders who have applied upon the release of the GCE ‘O’ Level results and close 5 days later.

3) From local Polytechnics - ex-polytechnic students.

4) Working adults who are Singapore Citizens and Permanent Residents with relevant work experience. In addition to their academic results.

Application website: http://courseapplication.sp.edu.sg.

Note: GCE ‘O’ Level holders who have applied through the JAE and the DAE may not apply again through SP’s DAE (except for those applying for the Nautical Studies course). Otherwise, their DAE application will be invalidated.
APPLICATION FOR COURSE TRANSFER

New students who wish to transfer to another course may submit a SP e-Appeal via http://courseapplication.sp.edu.sg. Such appeals may be considered subject to individual merit and vacancies. Applications are available from the SSC and on the Internet at http://www.sp.edu.sg/ssc. The student must continue to attend his original course of study pending the result of his application.

LEAVE OF ABSENCE

Students who are unable to attend classes / tests / assessments may apply online for leave of absence. For leave of absence due to illness, the medical leave of absence period applied for. Leave of absence by submitting an online form. This online form is accessible from the e-Services / e-Resources page or iChat via email for the application status closer to the end of Year 2. Students who are unable to attend classes / tests / assessments may apply online for leave of absence. For leave of absence due to illness, the medical leave of absence period applied for. Leave of absence by submitting an online form. This online form is accessible from the e-Services / e-Resources page or iChat via email for the application status closer to the end of Year 2. Students who are unable to attend classes / tests / assessments may apply online for leave of absence. For leave of absence due to illness, the medical leave of absence period applied for. Leave of absence by submitting an online form. This online form is accessible from the e-Services / e-Resources page or iChat via email for the application status closer to the end of Year 2.
TABLE 1B: ENTRY REQUIREMENTS FOR FULL-TIME DIPLOMA COURSES (GCE 'O' LEVEL / SPM / UEC HOLDERS) - 2019/2020 SESSION

<table>
<thead>
<tr>
<th>Entry Requirements at GCE 'O' Level / SPM / UEC</th>
<th>GCE 'O' LEVEL / SPM / UEC</th>
<th>UEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>English * 1 - 7</td>
<td>English * 1 - 7</td>
<td></td>
</tr>
<tr>
<td>Mathematics (Elementary / Additional) 1 - 7</td>
<td>Mathematics (Elementary / Additional) 1 - 7</td>
<td></td>
</tr>
</tbody>
</table>

Note: Grade B is equivalent to C- in the US grading system.

Table 1B: Entry Requirements for Full-Time Diploma Courses (GCE 'O' Level / SPM / UEC Holders) - 2019/2020 Session

- For GCE 'O' Level / SPM holders:
  - General Paper (English Medium) or Knowledge & Inquiry
  - Any Mathematics subject (H2 Level) 1 - 6
  - and one of the following subjects (H2 Level) 1 - 6
    - Physical Science
    - Physics
    - Chemistry 1 - 6
    - Biology 1 - 6

- For UEC holders:
  - English Language
  - and
  - Any Mathematics subject (H2 Level) 1 - 6
  - and one of the following subjects (H2 Level) 1 - 6
    - Physical Science
    - Physics
    - Chemistry 1 - 6
    - Biology 1 - 6

- Note: All successful applicants will be admitted to the 2nd year of the above 3-year course. For all other courses not in the above table, entry will be based on your GCE 'O' Level / SPM qualifications (refer to Tables 1A & 1B).

Note: CCA cannot be used to meet the minimum entry requirements.

For Art / Art & Design Design Studies:
- Visual acuity unaided of 6/60 in both eyes and with visual aids of 6/9 in the better eye and at least 6/18 in the other eye. Applicants must show proof of having passed the Maritime and Port Authority of Singapore (MPA) Sight Test, which is conducted at the SP Optometry Centre or by the Maritime and Port Authority of Singapore (MPA) Sight Test.

All applicants must be sponsored by a Singapore shipping company of their choice that is prepared to offer them an internship for Phase 2 of the course.

For all other courses, entry will be based on your GCE 'O' Level / SPM qualifications (refer to Tables 1A & 1B).

Note: To be eligible for admission, you must also show proof of having passed the Maritime and Port Authority of Singapore (MPA) Sight Test, which is conducted at the SP Optometry Centre or by the Maritime and Port Authority of Singapore (MPA) Sight Test.

- All applicants must be sponsored by a Singapore shipping company of their choice that is prepared to offer them an internship for Phase 2 of the course.

For all other courses, entry will be based on your GCE 'O' Level / SPM qualifications (refer to Tables 1A & 1B).

Note: All successful applicants will be admitted to the 2nd year of the above 3-year course. For all other courses not in the above table, entry will be based on your GCE 'O' Level / SPM qualifications (refer to Tables 1A & 1B).

Note: All successful applicants will be admitted to the 2nd year of the above 3-year course. For all other courses not in the above table, entry will be based on your GCE 'O' Level / SPM qualifications (refer to Tables 1A & 1B).
**TABLE 3: ENTRY REQUIREMENTS FOR FULL-TIME DIPLOMA COURSES**
**(HIGHER NITEC HOLDERS WITH GPA 2.0 AND ABOVE) - 2019/2020 SESSION**

<table>
<thead>
<tr>
<th>Full-Time Diploma Courses to be applied through the Joint Polytechnic Admissions Exercise (JPAE) in February 2019 at <a href="http://www.polytechnic.edu.sg/jpae">http://www.polytechnic.edu.sg/jpae</a></th>
<th>IF11</th>
<th>IF12</th>
<th>IF13</th>
<th>IF14</th>
<th>IF15</th>
<th>IF16</th>
<th>IF17</th>
<th>IF18</th>
<th>IF19</th>
<th>IF20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerospace Electronics</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Applied Chemistry</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Architecture</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Banking &amp; Finance</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Bioengineering</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Biomedical Science</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Biotechnology</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Business Administration</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Civil Engineering with Business</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Common Business Programme</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Common Engineering Programme</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Common ICT Programme</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Computer Engineering</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Electrical &amp; Electronic Engineering</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Engineering with Business</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Experience &amp; Communication Design</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Facilities Management</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Financial Informatics</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Food Science &amp; Technology</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Game Design &amp; Development</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Human Resource Management with Psychology</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Information Technology</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Integrated Events &amp; Project Management</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Interior Design</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Landscape Architecture</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Marine Engineering</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Maritime Business</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Mechatronics &amp; Robotics</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Nutrition, Health &amp; Wellness</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Perfumery &amp; Cosmetics Science</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

A *Unless otherwise stated, Higher Nitec Qualification holder with GPA of 3.0 or more is eligible to apply for this course.

Those with GPA of 3.5 or more and passed the Bridging Maths 1 (BM1) programme, or have obtained at least C6 grade in GCE 'O' Level Mathematics, may be admitted to the 2nd year of a 3 year course.

**TABLE 3: ENTRY REQUIREMENTS FOR FULL-TIME DIPLOMA COURSES**
**(HIGHER NITEC HOLDERS WITH GPA 2.0 AND ABOVE) - 2019/2020 SESSION (CONTINUED)**

<table>
<thead>
<tr>
<th>Full-Time Diploma Courses to be applied through the Joint Polytechnic Admissions Exercise (JPAE) in Jan 2019 at <a href="http://www.sp.edu.sg/dae">http://www.sp.edu.sg/dae</a></th>
<th>IF11</th>
<th>IF12</th>
<th>IF13</th>
<th>IF14</th>
<th>IF15</th>
<th>IF16</th>
<th>IF17</th>
<th>IF18</th>
<th>IF19</th>
<th>IF20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerospace Electronics</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Applied Chemistry</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Architecture</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Banking &amp; Finance</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Bioengineering</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Biomedical Science</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Biotechnology</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Business Administration</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Civil Engineering with Business</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Common Business Programme</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Common Engineering Programme</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Computer Engineering</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Electrical &amp; Electronic Engineering</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Engineering with Business</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Facilities Management</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Financial Informatics</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Food Science &amp; Technology</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Game Design &amp; Development</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Human Resource Management with Psychology</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Information Technology</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Integrated Events &amp; Project Management</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Interior Design</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Landscape Architecture</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Marine Engineering</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Maritime Business</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Mechatronics &amp; Robotics</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Nutrition, Health &amp; Wellness</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Perfumery &amp; Cosmetics Science</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

A *Unless otherwise stated, Higher Nitec Qualification holder with GPA of 3.0 or more is eligible to apply for this course.

Those with GPA of 3.5 or more and passed the Bridging Maths 1 (BM1) programme, or have obtained at least C6 grade in GCE 'O' Level Mathematics, may be admitted to the 2nd year of a 3 year course.
### TABLE 3: ENTRY REQUIREMENTS FOR FULL-TIME DIPLOMA COURSES (HIGHER NITEC HOLDERS WITH GPA 2.0 AND ABOVE) – 2019/2020 SESSION (CONTINUED)

<table>
<thead>
<tr>
<th>Programme</th>
<th>GPA Requirement</th>
<th>Other Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting</td>
<td>A+</td>
<td></td>
</tr>
<tr>
<td>Aeronautical Engineering</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Aerospace Electronics</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Applied Chemistry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Architecture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Banking &amp; Finance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bioengineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biomedical Science</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biotechnology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business Administration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Civil Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Business Programme</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Engineering Programme</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common ICT Programme</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical &amp; Electronic Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering with Business</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experience &amp; Communication &amp; Design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facilities Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial Information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food Science &amp; Technology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Game Design &amp; Development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human Resource Management with Psychology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infocomm Security Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information Technology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integrated Events &amp; Project Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interior Design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Landscape Architecture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marine Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maritime Business</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechatronics &amp; Robotics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nutrition, Health &amp; Wellness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perfumery &amp; Cosmetic Science</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

### TABLE 3: ENTRY REQUIREMENTS FOR FULL-TIME DIPLOMA COURSES (HIGHER NITEC HOLDERS WITH GPA 2.0 AND ABOVE) – 2019/2020 SESSION

None. From 2013, ITE graduates can include their CCA points in their GPA to gain admission.

1. It is recommended that applicants particularly those who wish to pursue a career in electrical power engineering or as a Licensed Electrical Worker (LEW) with colour vision deficiency may encounter difficulties meeting the course requirements and expectations. Interested applicants with mild deficiencies in these areas are advised to contact Singapore Polytechnic for consultation.

2. It is recommended that applicants particularly those who wish to pursue a career in electrical power engineering or as a Licensed Electrical Worker (LEW) with colour vision deficiency may encounter difficulties meeting the course requirements and expectations. This condition is required by the Energy Market Authority (EMA) of Singapore. Those with mild colour deficiency are required to undergo an in-house test. Interested applicants with this condition are highly encouraged to contact Singapore Polytechnic for consultation.

3. All candidates must pass the colour vision test as per The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW). Any applicant who does not meet the colour vision test will be required to attend an interview conducted by the Singapore Maritime Academy. International students are required to find a Singapore shipping company of their choice that is prepared to offer them an internship for Phase 2 of the course.

4. Shortlisted candidates must attend and pass an aptitude test cum interview with portfolio review.

5. Applicants must ensure that they have good night vision (i.e. visual acuity unaided of 6/60 in both eyes and with visual aids of 6/6 in the better eye and at least 6/12 in the other eye). Applicants must also pass the colour vision test as per The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW). Any offer of admission will be conditional upon applicants showing proof of having passed the Maritime and Port Authority of Singapore (MPA) Sight Test which is conducted by the STOC (Maritime Centre) or by General Practitioners. All applicants must be sponsored by a Singapore shipping company. Shortlisted candidates will be required to attend an interview conducted by the Singapore Maritime Academy. International students are required to find a Singapore shipping company of their choice that is prepared to offer them an internship for Phase 2 of the course.

6. Shortlisted candidates must attend and pass an aptitude test cum interview. For information on the courses conducted by Singapore Polytechnic, please visit http://www.np.edu.sg. The Polytechnic reserves the right to discontinue any courses, alter course admission requirements or amend any other information without prior notice.
<table>
<thead>
<tr>
<th>Full-Time Diploma Courses to be applied through the Joint Polytechnic Admissions Exercise (JPAE) in February 2019 at <a href="http://www.polytechnic.edu.sg/jpae">http://www.polytechnic.edu.sg/jpae</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Aeronautical Engineering ①</td>
</tr>
<tr>
<td>Aerospace Electronics ①</td>
</tr>
<tr>
<td>Applied Chemistry</td>
</tr>
<tr>
<td>Architecture</td>
</tr>
<tr>
<td>Bioengineering</td>
</tr>
<tr>
<td>Chemical Engineering</td>
</tr>
<tr>
<td>Civil Engineering with Business</td>
</tr>
<tr>
<td>Common Engineering Programme</td>
</tr>
<tr>
<td>Common ICT Programme</td>
</tr>
<tr>
<td>Computer Engineering</td>
</tr>
<tr>
<td>Electrical &amp; Electronic Engineering ①</td>
</tr>
<tr>
<td>Engineering with Business</td>
</tr>
<tr>
<td>Experience &amp; Communication Design</td>
</tr>
<tr>
<td>Facilities Management</td>
</tr>
<tr>
<td>Food Science &amp; Technology</td>
</tr>
<tr>
<td>Game Design &amp; Development</td>
</tr>
<tr>
<td>Information Security Management</td>
</tr>
<tr>
<td>Integrated Events &amp; Project Management</td>
</tr>
<tr>
<td>Information Technology</td>
</tr>
<tr>
<td>Interior Design</td>
</tr>
<tr>
<td>Landscape Architecture</td>
</tr>
<tr>
<td>Marine Engineering ①</td>
</tr>
<tr>
<td>Maritime Business</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
</tr>
<tr>
<td>Mechatronics &amp; Robotics</td>
</tr>
<tr>
<td>Nutrition, Health &amp; Wellness</td>
</tr>
<tr>
<td>Optometry ①</td>
</tr>
<tr>
<td>Perfumery &amp; Cosmetic Science</td>
</tr>
<tr>
<td>Applied Drama &amp; Psychology ①</td>
</tr>
<tr>
<td>Creative Writing for TV &amp; New Media ①</td>
</tr>
<tr>
<td>Digital Animation ①</td>
</tr>
<tr>
<td>Media &amp; Communication ①</td>
</tr>
<tr>
<td>Nautical Studies ①</td>
</tr>
<tr>
<td>Visual Effects &amp; Motion Graphics ①</td>
</tr>
</tbody>
</table>

* Nitec Qualification holder with GPA of 3.5 and above is eligible to apply for this course.
### TABLE 4: ENTRY REQUIREMENTS FOR FULL-TIME DIPLOMA COURSES (NITEC HOLDERS WITH GPA 3.5 AND ABOVE) – 2019/2020 SESSION (CONTINUED)

<table>
<thead>
<tr>
<th>Full-Time Diploma Courses to be applied through Direct Admissions Exercise (DAX) in Jan 2019 at <a href="http://www.r-p.edu.sg/dax">http://www.r-p.edu.sg/dax</a></th>
<th>1NT1</th>
<th>1NT2</th>
<th>1NT3</th>
<th>1NT4</th>
<th>1NT5</th>
<th>1NT6</th>
<th>1NT7</th>
<th>1NT8</th>
<th>1NT9</th>
<th>1NT10</th>
<th>1NT11</th>
<th>1NT12</th>
<th>1NT13</th>
<th>1NT14</th>
<th>1NT15</th>
<th>1NT16</th>
<th>1NT17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerospace Engineering (N)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Aerospace Electronics (N)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Applied Chemistry</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Architecture</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Bioengineering</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Civil Engineering with Business</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Common Engineering Programme</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Common ICT Programme</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Computer Engineering</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Electrical &amp; Electronic Engineering (N)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Engineering with Business</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Experience &amp; Communication Design</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Facilities Management</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Food Science &amp; Technology</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Game Design &amp; Development</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Incomes Security Management</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Information Technology</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Integrated Events &amp; Project Management</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Interior Design</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Landscape Architecture</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Marine Engineering (N)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Maritime Business</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Mechatronics &amp; Robotics</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Nutrition, Health &amp; Wellness</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Optometry (N)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Perfumery &amp; Cosmetics Science</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Full-Time Diploma Courses to be applied through Joint Polytechnic Admissions Exercise (JPAE) in Feb 2019 at <a href="http://www.jpaedgp.edu.sg/jpae">http://www.jpaedgp.edu.sg/jpae</a></td>
<td>1NT1</td>
<td>1NT2</td>
<td>1NT3</td>
<td>1NT4</td>
<td>1NT5</td>
<td>1NT6</td>
<td>1NT7</td>
<td>1NT8</td>
<td>1NT9</td>
<td>1NT10</td>
<td>1NT11</td>
<td>1NT12</td>
<td>1NT13</td>
<td>1NT14</td>
<td>1NT15</td>
<td>1NT16</td>
<td>1NT17</td>
</tr>
<tr>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Note:

A) From 2010, ITE graduates can include their GPA points in their full-time diploma courses application (NITEC HOLDERS WITH GPA 3.5 AND ABOVE). The International Convention on Standards of Training, Certification and watchkeeping for Seafarers (STCW) states that all candidates must pass the color vision test as per The International Convention on Standards of Training, Certification and watchkeeping for Seafarers (STCW).

B) Applicants with severe vision impairment may encounter difficulties meeting the course requirements and expectations. Please refer to the Ministry of Health (MOH) website on “Fitness to Practice” for registered Optometrists. Interested applicants with this condition are highly encouraged to contact Singapore Polytechnic for more information.

C) Shortlisted candidates must attend and pass an aptitude test Cum interview with portfolio review.

For information on the courses conducted by Singapore Polytechnic, please visit http://www.sp.edu.sg.
TABLE 6A: ENTRY REQUIREMENTS FOR FULL-TIME DIPLOMA COURSES (INTERNATIONAL QUALIFICATION HOLDERS) – 2019/2020 SESSION

<table>
<thead>
<tr>
<th>Country</th>
<th>Minimum Qualifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Returning Singapore Citizens (for qualifications not listed below)</td>
<td>Must have completed at least Year 10. Application will be assessed on a case by case basis. Qualification attained must be equivalent to the GCE O' Level Certificate</td>
</tr>
<tr>
<td>Home Scolced Students (for qualifications not listed below)</td>
<td>Application will be assessed on a case by case basis. Qualification attained must be equivalent to the GCE O' Level Certificate</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>Hong Kong Diploma of Secondary Education (HKDSE)</td>
</tr>
<tr>
<td>Indonesia</td>
<td>SMA Ujian Akhir Nasional (UAN) / STBT SMA / SMA / SMK Etnas</td>
</tr>
<tr>
<td>Malaysia</td>
<td>STP (Malay Language / STPM) – See Table 1A and 1B</td>
</tr>
<tr>
<td>People's Republic of China</td>
<td>Year 2019 Gakko (also known as National College Entrance Examination (NCEE))</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>Sri Lankan General Certificate of Education (O.L.) Examination</td>
</tr>
<tr>
<td>Thailand</td>
<td>Mar 6</td>
</tr>
<tr>
<td>United States</td>
<td>Year 12 High School Diploma</td>
</tr>
<tr>
<td>Vietnam</td>
<td>Year 12 High School Graduation Certificate of National Examination</td>
</tr>
</tbody>
</table>

Shortlisted candidates will most likely have to sit for entrance tests:

1) For enquiries, please email to contactus@sp.edu.sg.
2) The polytechnic reserves the right to amend the information provided without prior notice.
3) Those meeting overseas offered entrance tests in Singapore have to make their own arrangements if they wish to sit for the test.
4) Meeting the minimum entry requirements is not a guarantee that a candidate will be shortlisted or selected. Shortlisting / Selection will depend on competition for limited course vacancies in the year of application.
5) Those offering GCE / IGCE / GCE (non-Singapore-Cambodia) and/or other qualifications will be assessed based on their equivalence to the GCE O' level examinations.
6) An applicant is deemed to have attained a sufficient level of Proficiency in the English Language. If he/she attains a TOEFL score of 650 (paper based), 24 (computer based) or 90 (internet based) on the IELTS (International English Language Testing System) overall minimum 6.0 for Chinese qualifications 6.0 or above is also required for reading and speaking components or pass our English Language entrance test. Our English entrance test is only offered to selected / shortlisted applicants. Please also refer to TOEFL scores must be received directly from ETS (Educational Testing Service) otherwise it will not be considered. (The code for Singapore Polytechnic is ES95).
7) Interested applicants may complete the electronic application form (E-Form) and submit the required supporting documents. Should the qualifications be printed in a language other than English, please provide an English translation.

TABLE 6B: ENTRY REQUIREMENTS FOR FULL-TIME DIPLOMA COURSES (UEC-VOCATIONAL HOLDERS) – 2019/2020 SESSION

<table>
<thead>
<tr>
<th>Courses</th>
<th>Subjects</th>
<th>Acceptable Grades</th>
</tr>
</thead>
<tbody>
<tr>
<td>Civil Engineering with Business</td>
<td>a) English Language (Industrial English is not accepted)</td>
<td>1 – 6</td>
</tr>
<tr>
<td>Electronic &amp; Electrical Engineering</td>
<td>b) Mathematics</td>
<td>1 – 6</td>
</tr>
<tr>
<td>Marine Engineering</td>
<td>One of the following relevant subjects:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) Electrical Engineering</td>
<td>1 – 6 in both subjects</td>
</tr>
<tr>
<td></td>
<td>b) Basic Circuit Theory</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c) Fundamentals of Electrical Engineering</td>
<td></td>
</tr>
<tr>
<td>Mechatronics &amp; Robotics</td>
<td>One of the following relevant subjects:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) Electronics</td>
<td>1 – 6 in both subjects</td>
</tr>
<tr>
<td></td>
<td>b) Digital Logic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c) Principle Electronics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d) Mechanical Engineering</td>
<td></td>
</tr>
</tbody>
</table>

1) It should be noted that applicants, particularly those who wish to pursue a career in electrical power engineering or as a Licensed Electrical Worker (LEW), with colour vision deficiency may encounter difficulties meeting the course requirements and expectations, as normal colour vision is required by the Energy Market Authority (EMA) of Singapore. Those with mild colour deficiency are required to undergo an in-house test. Interested applicants with this condition are highly encouraged to contact SP for more information.
2) It should be noted that applicants particularly those who wish to pursue a career in Electrical power engineering as a Licensed Electrical Worker (LEW), with colour vision deficiency may encounter difficulties meeting the course requirements and expectations. Interested applicants with mild deficiencies in these areas are advised to contact SP for consultation.
3) Applicants with severe visual impairment may encounter difficulties meeting the course requirements and expectations. Please refer to the Ministry of Health (MOH) website on “Fitness to practice” for registered Optometrists. Interested applicants with this condition are highly encouraged to contact SP for more information.
4) All applicants must pass the colour vision test as per The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW).
5) At the end of the first semester, students will opt for one of the following Diploma courses:
   - Aviation Engineer (LEW) for those offering the relevant subject.
   - Others may encounter difficulties meeting the course requirements and expectations. Interested applicants with mild deficiencies in these areas are advised to contact SP for more information.
6) At the end of the first semester, students will opt for one of the following Diploma courses:
   - Mechanical Engineering
   - Others may encounter difficulties meeting the course requirements and expectations. Interested applicants with mild deficiencies in these areas are advised to contact SP for more information.
7) At the end of the first semester, students will opt for one of the following Diploma courses:
   - Others may encounter difficulties meeting the course requirements and expectations. Interested applicants with mild deficiencies in these areas are advised to contact SP for more information.
CREDIT ACCUMULATION MODULAR SYSTEM

Under the credit accumulation modular system, students will take a selected number of modules and accumulate credit units for those modules they have passed. Modules are assessed immediately upon completion of the required academic work at the end of a semester. There will be two semesters in an academic year. Students who fail in the semestral examination need only to repeat the failed modules in the next semester or year. They will not have to repeat all the modules belonging to the previous semester.

CONDITIONS FOR AWARD OF DIPLOMA

A student shall pass all core modules and option modules in a stage before he is promoted to the next stage of the course. The overall assessment of a module is based on any one or more of the following:

(a) semestral examination
(b) 100% in-course assessment
(c) continual assessment

To obtain a clear pass in a module, a student must score 50% or more in the overall assessment of that module.

CONDITIONS FOR REPEATING MODULES

Students who fail any core module or option module of a stage shall be retained in that stage. They need not, however, repeat the modules they have passed. If a student fails an elective module, he will be allowed to substitute that failed module with another elective module.

While repeating a stage, students may be allowed to take new modules of the next stage, together with the repeat modules. This is subject to the approval of the respective Academic Director and on condition that the total credit units do not exceed the prescribed number for that stage, and if such classes can be scheduled.

DURATION ALLOWED TO COMPLETE COURSE

The duration allowed for a student to complete his course of study is as follows:

(a) Two years for a one-year course of study;
(b) Four years for a two-year course of study;
(c) Six years for a three-year course of study;

Note: A student who is admitted directly into the second year of a three-year course will be deemed to be doing a two-year course of study. This applies to all students who do not start from the first year of the course.

CONDITIONS FOR PROMOTION IN A COURSE

A student must pass all the core modules and option modules in a stage before he is promoted to the next stage of the course. The overall assessment of a module is based on any one or more of the following:

(a) semestral examination
(b) 100% in-course assessment
(c) continual assessment

e) Notwithstanding Para (d) above, a student who has to repeat only one module may, upon the approval by the Academic Director, be allowed to take that repeat module together with all the new modules in the next stage, provided such classes can be scheduled. This is a privilege granted to the student and not a right, based solely on the assessment of the student’s ability to cope with the additional module.

CONDITIONS FOR REMOVAL

A student shall be removed from the course if:

(a) he is unable to complete his course of study within the period of the duration allowed for that course;
(b) he repeats any of the core modules, option or elective modules and fails;
(c) he obtains a semestral average below 35% at one sitting for that stage;
(d) he is absent from the semestral examination without a valid reason.

ABSENCE FROM EXAMINATIONS

A student who is absent without a valid reason from the semestral examination for a module shall be considered to have sat and failed the module.

If a student has a valid reason to miss taking the semestral examination, he may apply for leave of absence (LOA) from the semestral examination, using the online LOA application form via the Student Portal.

The application will be considered on the basis of the student’s ability to cope with the additional module.

APPLICATION FOR LEAVE OF ABSENCE

A student who is granted leave of absence must be submitted within two working days from the day of absence.

Where a student is granted leave of absence from the semestral examination, the module shall be removed from the list of modules registered by him for that semester and he shall not be considered to have made one attempt in the examination for that module. The student must attend all classes and sit for all assessments in the module in a subsequent semester in which that module is offered, subject to the maximum number of modules allowed for that stage of study and the constraints of the class timetable.

APPEALS FROM STUDENTS

Students may make appeals in respect to their semestral examination results by submitting an appeal form obtainable from the Student Service Centre. All appeals should be submitted within four working days following the release of the examination results.

e) Notwithstanding Para (d) above, a student who is granted leave of absence from the semestral examination may apply to the Director of his school to be exempted from attending classes for the subsequent sitting and/or to be allowed to carry forward his past in-course assessed component marks. The application will be considered on a case-by-case basis. The application procedure may be obtained from the school which the student belongs to.

f) A student shall only be granted one deferment for each of the modules that he is taking.
b) Non-Singaporeans and Permanent Residents of Singapore who want to receive the tuition grant will have to sign a deed with the Government. Under the terms of the Tuition Grant (TG) Deed, you will be bound to work for a Singapore company for 3 years upon graduation.

Two sureties are required for the execution of the TG Deed. They can be of any nationality, above 21 years and below 65 years of age and must not be bankrupts. Students may refer to inserts in the enrolment package for details on applications and conditions.

RESERVED PLACES FOR FULL-TIME NATIONAL SERVICEMEN
The tuition grant scheme will also apply to National Servicemen granted places on a reserved basis in previous years. Their tuition grants will be suitably adjusted such that their direct payment will be the same as that of other students who entered the polytechnic at that time.

FEE LIABILITY
Students are liable to pay fees if their official withdrawal is after commencement of semester. All components of Other Fees are subjected to changes.

CHANGE IN CITIZENSHIP STATUS
For international students who obtain Singapore Citizenship (SC) or Permanent Resident (SPR) status before the commencement of each semester, their fees will be adjusted with effect from that semester. For those who obtain their SC or SPR status after the commencement of a semester, they will pay the fees for Singaporeans/Permanent Residents with effect from the next semester. There shall be no refund of the difference of fees already paid.

**Table 1: Annual Course Fees (inclusive of GST) for student who accepts Tuition Grant**

<table>
<thead>
<tr>
<th></th>
<th>SINGAPORE CITIZEN</th>
<th>SINGAPORE PR</th>
<th>INTERNATIONAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non Subsidised Fees</td>
<td>$21,721.00</td>
<td>$21,828.00</td>
<td>$22,009.50</td>
</tr>
<tr>
<td>Other Fees (Note 1)</td>
<td>$91.09</td>
<td>$121.09</td>
<td>$157.19</td>
</tr>
<tr>
<td>Total</td>
<td>$21,812.09</td>
<td>$21,951.59</td>
<td>$22,166.69</td>
</tr>
<tr>
<td>Amount to pay before Enrolment for Semester 1 (Note 2)</td>
<td>$10,951.59</td>
<td>$11,037.19</td>
<td>$11,161.94</td>
</tr>
<tr>
<td>Amount to pay in Semester 2 (Note 3)</td>
<td>$10,860.50</td>
<td>$10,914.00</td>
<td>$10,004.75</td>
</tr>
</tbody>
</table>

Note 1: Other Fees for all students

Note 2: Semester 1 fees include Tuition Fee and Other Fees

Note 3: Semester 2 fees include Tuition Fee only

**Table 2: Annual Course Fees (inclusive of GST) for student who rejects/not eligible for Tuition Grant**

<table>
<thead>
<tr>
<th></th>
<th>SINGAPORE CITIZEN</th>
<th>SINGAPORE PR</th>
<th>INTERNATIONAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non Subsidised Fees</td>
<td>$21,721.00</td>
<td>$21,828.00</td>
<td>$22,009.50</td>
</tr>
<tr>
<td>Other Fees (Note 1)</td>
<td>$91.09</td>
<td>$121.09</td>
<td>$157.19</td>
</tr>
<tr>
<td>Total</td>
<td>$21,812.09</td>
<td>$21,951.59</td>
<td>$22,166.69</td>
</tr>
<tr>
<td>Amount to pay before Enrolment for Semester 1 (Note 2)</td>
<td>$10,951.59</td>
<td>$11,037.19</td>
<td>$11,161.94</td>
</tr>
<tr>
<td>Amount to pay in Semester 2 (Note 3)</td>
<td>$10,860.50</td>
<td>$10,914.00</td>
<td>$10,004.75</td>
</tr>
</tbody>
</table>

Note 1: Other Fees for all students

Note 2: Semester 1 fees include Tuition Fee and Other Fees

Note 3: Semester 2 fees include Tuition Fee only

**Table 3: Summary of Fees for Full Time Diploma**
The Tables below show the Course Fees for Full time diploma course and are subjected to changes for Academic Year 2019/2020

**Note 1:** Other Fees for all students

**Note 2:** Semester 1 fees include Tuition Fee and Other Fees

**Note 3:** Semester 2 fees include Tuition Fee only

**Tuition Fees Payable (For First Academic Year)**

- **A) FULL-TIME DIPLOMA**
  The fees per academic year are payable in two installments unless otherwise advised. The first installment is due in the first semester and the second in the second semester. All students will be notified by the Finance Department of the date of payment of each installment.

  New students who are offered a place in 2019/20 academic year will receive an enrolment package. All new students are required to pay their first semester fee during enrolment. Please refer to the Fee Advice for the actual amount payable and the payment options available enclosed in the enrolment package.

  **Tuition Grant for Full-Time Students**
  a) A student’s full-time education is subsidised by the Government of Singapore. However, to help students pay part of the training cost, the Singapore Government, through the Ministry of Education, provides tuition grants to all full-time students.

  The fees below show the Course Fees for Full time diploma course and are subjected to changes for Academic Year 2019/2020.
Academic Information

FINANCIAL SCHEMES FOR FULL-TIME DIPLOMA COURSES

Student who accepts Tuition Grant is eligible to apply for the Financial Schemes to pay for your course fees. You may apply for one or more of the financial schemes depending on your financial needs.

Upon approval from the respective authorities, the approved amount will be used to pay for your course fees in the following sequence:

1) Mendaki Tertiary Tuition Fee Subsidy (Mendaki TTFS)
2) SkillsFuture Credit (SFC)
3) Post Secondary Education Account (PSEA)
4) CPF Approved Education Scheme (CPF-AES)
5) Tuition Fee Loan (TFL)

1) Mendaki Tertiary Tuition Fee Subsidy (Mendaki TTFS)

The approved amount will be used to pay for your Tuition Fee only. Other fees have to be paid by other mode of payment e.g. E-Payment.

APPLICATION
- Log on to http://ttfs.mendaki.org.sg to make an application. Only online applications will be accepted by Mendaki.
- Print a copy of the acknowledgement page and submit together with your enrolment documents to SP Finance Department.
- Once approved, Mendaki will pay the approved amount directly to SP.

CONTACT
For further enquires, you can:
- call Yayasan Mendaki at Tel: 6551 2840
- email to ttfs@mendaki.org.sg
- visit website at http://www.mendaki.org.sg

ELIGIBILITY
- Singapore Citizen
- Full-time diploma student

APPLICATION
- Please log on to http://www.skillsfuture.sg/credit by using your own SingPass through SFC portal. If you do not have a SingPass account, you may apply at https://www.singpass.gov.sg/
- You can view a summary of your SkillsFuture credit that is available
- For more details on claim submission, you may visit http://www.skillsfuture.sg/docs/SFC_UserGuide.pdf
- Print a copy of acknowledgement page, with Claim ID, Claim Amount and Date Submitted. after your submission.

CONTACT
For further enquires you can:
- call SkillsFuture hotline at Tel: 6765 5785
- visit website at http://www.skillsfuture.sg/credit

3) Post Secondary Education Account (PSEA)

The PSEA scheme is administered by MOE. If a Singaporean has an Edusave account, the balance amount will be transferred to PSEA when he is 16 years old or when he leaves Secondary School/ Junior College/ Centralised Institute or Vocational Training Center, whichever occurs later.

Your PSEA money can be used to pay for your Course Fees (includes Tuition Fee and Other Fees).

Other fees have to be paid by other mode of payment e.g.
- E-Payment
- AXS

ELIGIBILITY
- All nationalities
- Full-time diploma student

APPLICATION
- You and the CPF member (e.g. parents or siblings) must have SingPass and email accounts. If you do not have a SingPass account, you may apply at https://www.singpass.gov.sg
- Submit online application using your own SingPass through CPF Board’s website https://www.cpf.gov.sg

CONTACT
To find out your PSEA balance, you can:
- call MOE Customer Service at Tel: 6260-0777
- email to contact@moe.gov.sg
- visit website at http://www.moe.gov.sg

The closing date for application is 30 April 2019.

4) CPF Approved Education Scheme (CPF-AES)

The CPF-AES is a loan scheme which enables members to use CPF savings from their Ordinary Account to pay for their children’s, sibling’s or their own Tuition Fee. Members are required to pay an administrative fee of S$70 to the CPF Board for each deduction from a member’s account.

Other fees have to be paid by other mode of payment e.g.
- E-Payment
- AXS

ELIGIBILITY
- All nationalities
- Full-time diploma student

APPLICATION
- You and the CPF member (e.g. parents or siblings) must have SingPass and email accounts. If you do not have a SingPass account, you may apply at https://www.singpass.gov.sg
- Submit online application using your own SingPass through CPF Board’s website https://www.cpf.gov.sg

CONTACT
For further enquires you can:
- call CPF Call Centre at Tel: 1800-227-1188 (Fax: 6229-3245)
- email to education@cpf.gov.sg
- visit website at https://www.cpf.gov.sg/Members/schemes/schemes/other-matters/CPF-education-scheme

5) Tuition Fee Loan (DBS-TFL)

DBS-TFL is a government-funded education loan which is administered by DBS Bank. You can apply up to 75% of the Tuition Fee and Other Fees by other mode of payment e.g.
- E-Payment
- AXS

The loan is interest-free during course of study. You have to repay the loan plus interest, charged at average prime rate of DBS, OICB and UOB, after graduation.

ELIGIBILITY
- All nationalities
- Full-time diploma student

APPLICATION
- Complete the application.
- Visit any DBS branch (not POSB bank) personally with your guarantor to submit the following documents:
  - Original Application Form
  - Offer Letter/Student Card
  - Copy of Borrower and Guarantor NRIC/Passport (Validity of Passport as at date of signing > 6 months)
  - Notary Public Stamp if borrower/guarantor is not in Singapore
  - Proof of residential address (Student with no account with POSB) DBS at the point of application
- Obtain a photocopy of the Bank endorsed loan agreement and submit together with your enrolment documents to SP Finance Department. Retain a copy of the Bank endorsed loan agreement for your own record.
- Once approved, the Bank will pay the approved amount directly to SP.
- The closing date for application is 30 April 2019.
B) POLYTECHNIC FOUNDATION PROGRAMME

For a Normal Academic (N(A)) student looking at entering a polytechnic, instead of heading to Secondary 5, the PFP enables you to embark on a one-year practice-oriented curriculum taught by polytechnic lecturers. This programme, offered to the top 10% of the Secondary 4 N(A) cohort, will better prepare you for entry into the polytechnic diploma course that you're interested in.

Your successful admission into this programme gives you provisional placing in the diploma course of your choice, subject to you passing all modules in the PFP.

TABLE 2: SUMMARY OF FEES FOR POLYTECHNIC FOUNDATION PROGRAMME

The Table below show the Course Fees for Polytechnic Foundation Programme for Academic Year 2019/2020.

<table>
<thead>
<tr>
<th>ANNUAL COURSE FEES</th>
<th>SINGAPOREAN</th>
<th>SINGAPOREAN PR</th>
<th>INTERNATIONAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition Fee</td>
<td>$363.80</td>
<td>$2,675.00</td>
<td>$9,900.00</td>
</tr>
<tr>
<td>Other Fees (Note 1)</td>
<td>$91.09</td>
<td>$123.19</td>
<td>$123.19</td>
</tr>
<tr>
<td>MOE Subsidy for GST on Tuition Fee</td>
<td>$(23.80)</td>
<td>$(375.00)</td>
<td>NA</td>
</tr>
<tr>
<td>Total</td>
<td>$431.09</td>
<td>$2,623.19</td>
<td>$10,057.19</td>
</tr>
<tr>
<td>Amount to pay before Enrolment for Semester 1 (Note 4)</td>
<td>$261.09</td>
<td>$1,373.19</td>
<td>$5,107.19</td>
</tr>
<tr>
<td>Amount to pay in Semester 2 (Note 5)</td>
<td>$170.00</td>
<td>$1,250.00</td>
<td>$4,950.00</td>
</tr>
</tbody>
</table>

Note 4: Semester 1 fees include Tuition Fee and Other Fees
Note 5: Semester 2 fees include Tuition Fee only

C) EARLY ADMISSIONS EXERCISE (EAE)

EAE is an admissions exercise that allows students to apply and receive conditional offers for admission to polytechnic based on their aptitudes and interests before taking their ‘O’ Level examinations [http://www.sp.edu.sg/eae/]

OTHER CHARGES

<table>
<thead>
<tr>
<th>CHARGES</th>
<th>AMOUNT (GST INCLUSIVE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Registration Fee for SMA DNS/Class 3 Correspondence course</td>
<td>$700</td>
</tr>
<tr>
<td>Fee for DNS/Class 3 Correspondence Course (Singapore Citizen)</td>
<td>$700.00</td>
</tr>
<tr>
<td>Fee for DNS/Class 3 Correspondence Course (Singapore PR)</td>
<td>$931.00</td>
</tr>
<tr>
<td>Fee for DNS/Class 3 Correspondence Course (International)</td>
<td>$1,400.00</td>
</tr>
<tr>
<td>b) Entrance Test Fee per subject (when an application to sit for Entrance Test is approved)</td>
<td>$10.70</td>
</tr>
<tr>
<td>c) Replacement Fee for Documents:</td>
<td></td>
</tr>
<tr>
<td>Library Membership Card (Graduate, Personal &amp; Corporate membership)</td>
<td>$2.15</td>
</tr>
<tr>
<td>Duplicate copy of certificate issue through Singapore Maritime Academy (Such duplicate copies will be supplied when a signed statement is given to the department setting out the circumstances for the loss of the original certificate)</td>
<td>$21.40</td>
</tr>
<tr>
<td>Duplicate copy of Statement of Fee Receipt</td>
<td>$5.35</td>
</tr>
<tr>
<td>Student Admission Card</td>
<td>$10.70</td>
</tr>
</tbody>
</table>
b) Refund/Payment due to you

The same GIRO account will be used for creating any refund or payment due to you. This reduces the inconvenience of collecting and depositing cheques. Refund or payment can be for any of the following matters:

- Excess payment of fees made by you
- Scholarships and Bursaries awarded
- Any other payment due to you

For full-time diploma and Polytechnic Foundation Programme students, we will notify you of the course fee to be deducted and deduction date at least one week in advance via the e-statement that will be sent to your ichat (email) account. You may check the GIRO application status online via Student Mobile @ https://portal.sp.edu.sg/sites/esservices/HomePage.aspx Select ‘Finance Matters’ > ‘GIRO Account’ and Enter ‘User ID & Password’.

For unsuccessful GIRO deductions, you will be subjected to bank charges imposed by your Bank.

REFUND OF FEES

Students who intend to withdraw from their course must complete a prescribed Withdrawal Form (available at the Student Service Centre and http://www.sp.edu.sg/SSC) and submit it to the Student Service Centre.

For withdrawal received before the commencement of semester, student may obtain a refund of Tuition Fee paid for that semester less an administrative fee of $50 for full-time diploma.

For withdrawal received within the first week of the semester, 75% refund of Tuition Fee may be granted.

For withdrawals received after the first week of the semester, there will be no refund of paid Tuition Fee.

Note:
1. Students’ Union Entrance and Subscription Fees are not refundable regardless of withdrawal date.
2. All other fees will be refundable for withdrawals received before semester starts and during lst week of semester.

E) SUMMARY OF FEES FOR PART-TIME DIPLOMA (AY1819)

TABLE 3: SUMMARY OF FEES FOR PART-TIME DIPLOMA

<table>
<thead>
<tr>
<th>Modular Certificates (MC)</th>
<th>Singapore Citizens Below the age of 40</th>
<th>Singapore Citizens Aged 40 and above</th>
<th>Singapore PR</th>
<th>Enhanced Training Support Scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificate in Business Fundamentals</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
</tr>
<tr>
<td>Certificate in Business Technology</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
</tr>
<tr>
<td>Certificate in Business Management</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
</tr>
<tr>
<td>Certificate in Business &amp; Corporate Finance</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
</tr>
<tr>
<td>Certificate in Business &amp; Accounting Services</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
</tr>
<tr>
<td>Total Course Fees</td>
<td>$2,383.45</td>
<td>$1,588.95</td>
<td>$6,355.80</td>
<td>$1,640.95</td>
</tr>
</tbody>
</table>

DIPLOMA IN BUSINESS PRACTICE (ACCOUNTING)

<table>
<thead>
<tr>
<th>Modular Certificates (MC)</th>
<th>Singapore Citizens Below the age of 40</th>
<th>Singapore Citizens Aged 40 and above</th>
<th>Singapore PR</th>
<th>Enhanced Training Support Scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificate in Business Fundamentals</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
</tr>
<tr>
<td>Certificate in Business Technology</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
</tr>
<tr>
<td>Certificate in Business Management</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
</tr>
<tr>
<td>Certificate in Business &amp; Corporate Finance</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
</tr>
<tr>
<td>Certificate in Business &amp; Accounting Services</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
</tr>
<tr>
<td>Total Course Fees</td>
<td>$2,383.45</td>
<td>$1,588.95</td>
<td>$6,355.80</td>
<td>$1,640.95</td>
</tr>
</tbody>
</table>

DIPLOMA IN BUSINESS PRACTICE (BUSINESS MANAGEMENT)

<table>
<thead>
<tr>
<th>Modular Certificates (MC)</th>
<th>Singapore Citizens Below the age of 40</th>
<th>Singapore Citizens Aged 40 and above</th>
<th>Singapore PR</th>
<th>Enhanced Training Support Scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificate in Business Fundamentals</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
</tr>
<tr>
<td>Certificate in Business Processes</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
</tr>
<tr>
<td>Certificate in Business Applications</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
</tr>
<tr>
<td>Certificate in Business Operations</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
</tr>
<tr>
<td>Certificate in Business Services</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
</tr>
<tr>
<td>Total Course Fees</td>
<td>$2,383.45</td>
<td>$1,588.95</td>
<td>$6,355.80</td>
<td>$1,640.95</td>
</tr>
</tbody>
</table>

DIPLOMA IN BUSINESS PRACTICE (HUMAN CAPITAL)

<table>
<thead>
<tr>
<th>Modular Certificates (MC)</th>
<th>Singapore Citizens Below the age of 40</th>
<th>Singapore Citizens Aged 40 and above</th>
<th>Singapore PR</th>
<th>Enhanced Training Support Scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificate in Business Fundamentals</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
</tr>
<tr>
<td>Certificate in Business Technology</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
</tr>
<tr>
<td>Certificate in Business Management</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
</tr>
<tr>
<td>Certificate in Human Capital</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
</tr>
<tr>
<td>Certificate in Talent Management</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
</tr>
<tr>
<td>Total Course Fees</td>
<td>$2,383.45</td>
<td>$1,588.95</td>
<td>$6,355.80</td>
<td>$1,640.95</td>
</tr>
</tbody>
</table>

DIPLOMA IN DESIGN (INTERIOR DESIGN)

<table>
<thead>
<tr>
<th>Modular Certificates (MC)</th>
<th>Singapore Citizens Below the age of 40</th>
<th>Singapore Citizens Aged 40 and above</th>
<th>Singapore PR</th>
<th>Enhanced Training Support Scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificate in Design Foundation</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
</tr>
<tr>
<td>Certificate in Spatial Design (Fundamentals)</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
</tr>
<tr>
<td>Certificate in Design Methods</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
</tr>
<tr>
<td>Certificate in Project Management</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
</tr>
<tr>
<td>Certificate in Spatial Design (Advanced)</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
</tr>
<tr>
<td>Total Course Fees</td>
<td>$2,383.45</td>
<td>$1,588.95</td>
<td>$6,355.80</td>
<td>$1,640.95</td>
</tr>
</tbody>
</table>
### Academic Information

**Diploma in Design (Visual Communication)**

<table>
<thead>
<tr>
<th>Certificate in Design Foundation</th>
<th>Singapore Citizens Below the age of 40</th>
<th>Singapore Citizens Aged 40 and above</th>
<th>Singapore PR</th>
<th>Enhanced Training Support for SME scheme</th>
<th>Workfare Training Support Schemes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$476.69</td>
<td>$331.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
<td>$179.69</td>
</tr>
<tr>
<td>Total Course Fees</td>
<td>$2,383.45</td>
<td>$1,588.95</td>
<td>$6,355.80</td>
<td>$1,640.95</td>
<td>$898.45</td>
</tr>
</tbody>
</table>

**Diploma in Engineering (Advanced Manufacturing)**

<table>
<thead>
<tr>
<th>Certificate in Engineering Drafting &amp; Design</th>
<th>Singapore Citizens Below the age of 40</th>
<th>Singapore Citizens Aged 40 and above</th>
<th>Singapore PR</th>
<th>Enhanced Training Support for SME scheme</th>
<th>Workfare Training Support Schemes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$476.69</td>
<td>$331.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
<td>$179.69</td>
</tr>
<tr>
<td>Total Course Fees</td>
<td>$2,383.45</td>
<td>$1,588.95</td>
<td>$6,355.80</td>
<td>$1,640.95</td>
<td>$898.45</td>
</tr>
</tbody>
</table>

**Diploma in Engineering (Control & Automation)**

<table>
<thead>
<tr>
<th>Certificate in Electrical &amp; Digital Circuit Fundamentals</th>
<th>Singapore Citizens Below the age of 40</th>
<th>Singapore Citizens Aged 40 and above</th>
<th>Singapore PR</th>
<th>Enhanced Training Support for SME scheme</th>
<th>Workfare Training Support Schemes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$476.69</td>
<td>$331.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
<td>$179.69</td>
</tr>
<tr>
<td>Total Course Fees</td>
<td>$2,383.45</td>
<td>$1,588.95</td>
<td>$6,355.80</td>
<td>$1,640.95</td>
<td>$898.45</td>
</tr>
</tbody>
</table>

**Diploma in Engineering (Mechanical Technology)**

<table>
<thead>
<tr>
<th>Certificate in Engineering Drafting &amp; Design</th>
<th>Singapore Citizens Below the age of 40</th>
<th>Singapore Citizens Aged 40 and above</th>
<th>Singapore PR</th>
<th>Enhanced Training Support for SME scheme</th>
<th>Workfare Training Support Schemes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$476.69</td>
<td>$331.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
<td>$179.69</td>
</tr>
<tr>
<td>Total Course Fees</td>
<td>$2,383.45</td>
<td>$1,588.95</td>
<td>$6,355.80</td>
<td>$1,640.95</td>
<td>$898.45</td>
</tr>
</tbody>
</table>

**Diploma in Engineering (Power Engineering)**

<table>
<thead>
<tr>
<th>Certificate in Electrical &amp; Digital Circuit Fundamentals</th>
<th>Singapore Citizens Below the age of 40</th>
<th>Singapore Citizens Aged 40 and above</th>
<th>Singapore PR</th>
<th>Enhanced Training Support for SME scheme</th>
<th>Workfare Training Support Schemes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$476.69</td>
<td>$331.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
<td>$179.69</td>
</tr>
<tr>
<td>Total Course Fees</td>
<td>$2,383.45</td>
<td>$1,588.95</td>
<td>$6,355.80</td>
<td>$1,640.95</td>
<td>$898.45</td>
</tr>
</tbody>
</table>

**Diploma in Engineering (Rapid Transit Technology)**

<table>
<thead>
<tr>
<th>Certificate in Electrical &amp; Digital Circuit Fundamentals</th>
<th>Singapore Citizens Below the age of 40</th>
<th>Singapore Citizens Aged 40 and above</th>
<th>Singapore PR</th>
<th>Enhanced Training Support for SME scheme</th>
<th>Workfare Training Support Schemes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$476.69</td>
<td>$331.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
<td>$179.69</td>
</tr>
<tr>
<td>Total Course Fees</td>
<td>$2,383.45</td>
<td>$1,588.95</td>
<td>$6,355.80</td>
<td>$1,640.95</td>
<td>$898.45</td>
</tr>
</tbody>
</table>

**Diploma in Information & Digital Media (Cyber Security)**

<table>
<thead>
<tr>
<th>Certificate in Computer-Aided Manufacturing</th>
<th>Singapore Citizens Below the age of 40</th>
<th>Singapore Citizens Aged 40 and above</th>
<th>Singapore PR</th>
<th>Enhanced Training Support for SME scheme</th>
<th>Workfare Training Support Schemes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$476.69</td>
<td>$331.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
<td>$179.69</td>
</tr>
<tr>
<td>Total Course Fees</td>
<td>$2,383.45</td>
<td>$1,588.95</td>
<td>$6,355.80</td>
<td>$1,640.95</td>
<td>$898.45</td>
</tr>
</tbody>
</table>

**Diploma in Quantity Surveying Measurement & Contract Administration**

<table>
<thead>
<tr>
<th>Certificate in Building Technology</th>
<th>Singapore Citizens Below the age of 40</th>
<th>Singapore Citizens Aged 40 and above</th>
<th>Singapore PR</th>
<th>Enhanced Training Support for SME scheme</th>
<th>Workfare Training Support Schemes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$476.69</td>
<td>$331.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
<td>$179.69</td>
</tr>
<tr>
<td>Total Course Fees</td>
<td>$2,383.45</td>
<td>$1,588.95</td>
<td>$6,355.80</td>
<td>$1,640.95</td>
<td>$898.45</td>
</tr>
</tbody>
</table>

**SkillsFuture Earn & Learn Programme Leading to Part-Time Diploma in Applied Science (Chemical Laboratory Technology)**

<table>
<thead>
<tr>
<th>Certificate in Basic Laboratory Techniques &amp; Safety</th>
<th>Singapore Citizens Below the age of 40</th>
<th>Singapore Citizens Aged 40 and above</th>
<th>Singapore PR</th>
<th>Enhanced Training Support for SME scheme</th>
<th>Workfare Training Support Schemes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$495.93</td>
<td>$330.97</td>
<td>$1,058.02</td>
<td>$273.16</td>
<td>$149.95</td>
</tr>
<tr>
<td>Total Course Fees</td>
<td>$2,343.72</td>
<td>$1,562.47</td>
<td>$6,249.87</td>
<td>$1,613.59</td>
<td>$883.47</td>
</tr>
</tbody>
</table>

**SKILLSFUTURE EARN & LEARN PROGRAMME LEADING TO PART-TIME DIPLOMA IN ENGINEERING (ADVANCED MANUFACTURING)**

<table>
<thead>
<tr>
<th>Certificate in Electrical &amp; Digital Circuit Fundamentals</th>
<th>Singapore Citizens Below the age of 40</th>
<th>Singapore Citizens Aged 40 and above</th>
<th>Singapore PR</th>
<th>Enhanced Training Support for SME scheme</th>
<th>Workfare Training Support Schemes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$476.69</td>
<td>$331.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
<td>$179.69</td>
</tr>
<tr>
<td>Total Course Fees</td>
<td>$2,383.45</td>
<td>$1,588.95</td>
<td>$6,355.80</td>
<td>$1,640.95</td>
<td>$898.45</td>
</tr>
</tbody>
</table>

**SkillsFuture Earn & Learn Programme Leading to Part-Time Diploma in Engineering (Rapid Transit Technology)**

<table>
<thead>
<tr>
<th>Certificate in Electrical &amp; Digital Circuit Fundamentals</th>
<th>Singapore Citizens Below the age of 40</th>
<th>Singapore Citizens Aged 40 and above</th>
<th>Singapore PR</th>
<th>Enhanced Training Support for SME scheme</th>
<th>Workfare Training Support Schemes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$476.69</td>
<td>$331.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
<td>$179.69</td>
</tr>
<tr>
<td>Total Course Fees</td>
<td>$2,383.45</td>
<td>$1,588.95</td>
<td>$6,355.80</td>
<td>$1,640.95</td>
<td>$898.45</td>
</tr>
</tbody>
</table>

1. inclusive of 12 months of On-Job Training

2. inclusive of 12 months of On-Job Training
### Academic Information

#### SkillsFuture Earn & Learn Programme Leading to Part-Time Diploma in Engineering (Control & Automation)*

<table>
<thead>
<tr>
<th>Modular Certificates (MC)</th>
<th>Singapore Citizens Below the age of 40</th>
<th>Singapore Citizens Aged 40 and above</th>
<th>Singapore PR</th>
<th>Enhanced Training Support for Full-time Scheme</th>
<th>Workfare Training Support Scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificate in Electrical &amp; Digital Circuit Fundamentals</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
<td>$179.69</td>
</tr>
<tr>
<td>Certificate in Electronics</td>
<td>$595.13</td>
<td>$396.76</td>
<td>$1,587.02</td>
<td>$409.73</td>
<td>$224.33</td>
</tr>
<tr>
<td>Certificate in Sensors &amp; Fieldbus</td>
<td>$595.13</td>
<td>$396.76</td>
<td>$1,587.02</td>
<td>$409.73</td>
<td>$224.33</td>
</tr>
<tr>
<td>Certificate in PLC &amp; Control System*</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
<td>$179.69</td>
</tr>
<tr>
<td>Certificate in Network &amp; Control*</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
<td>$179.69</td>
</tr>
<tr>
<td><strong>Total Course Fees</strong></td>
<td>$2,738.77</td>
<td>$1,825.86</td>
<td>$7,303.38</td>
<td>$1,885.57</td>
<td>$1,032.37</td>
</tr>
</tbody>
</table>

#### SkillsFuture Earn & Learn Programme Leading to Part-Time Diploma in Engineering (Electrical – Rapid Transit Technology)*

<table>
<thead>
<tr>
<th>Modular Certificates (MC)</th>
<th>Singapore Citizens Below the age of 40</th>
<th>Singapore Citizens Aged 40 and above</th>
<th>Singapore PR</th>
<th>Enhanced Training Support for Full-time Scheme</th>
<th>Workfare Training Support Scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificate in Electrical &amp; Digital Circuit Fundamentals</td>
<td>$595.13</td>
<td>$396.76</td>
<td>$1,587.02</td>
<td>$409.73</td>
<td>$224.33</td>
</tr>
<tr>
<td>Certificate in Train Mechanical System / Certificate in Automatic Train Control</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>Certificate in Train Electrical System / Certificate in Signal Interlocking &amp; Maintenance</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>Certificate in Electrical Systems*</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
<td>$179.69</td>
</tr>
<tr>
<td>Certificate in Communication Systems*</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
<td>$179.69</td>
</tr>
<tr>
<td><strong>Total Course Fees</strong></td>
<td>$1,548.51</td>
<td>$1,032.34</td>
<td>$4,129.34</td>
<td>$1,046.11</td>
<td>$583.71</td>
</tr>
</tbody>
</table>

#### SkillsFuture Earn & Learn Programme Leading to Part-Time Diploma in Engineering (Mechanical – Rapid Transit Technology)*

<table>
<thead>
<tr>
<th>Modular Certificates (MC)</th>
<th>Singapore Citizens Below the age of 40</th>
<th>Singapore Citizens Aged 40 and above</th>
<th>Singapore PR</th>
<th>Enhanced Training Support for Full-time Scheme</th>
<th>Workfare Training Support Scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificate in Engineering Fundamentals</td>
<td>$595.13</td>
<td>$396.76</td>
<td>$1,587.02</td>
<td>$409.73</td>
<td>$224.33</td>
</tr>
<tr>
<td>Certificate in Train Mechanical System / Certificate in Permanent Way System</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>Certificate in Train Electrical System / Certificate in Track Maintenance</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>Certificate in Engineering Mechanics*</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
<td>$179.69</td>
</tr>
<tr>
<td>Certificate in Thermofluids Engineering*</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
<td>$179.69</td>
</tr>
<tr>
<td><strong>Total Course Fees</strong></td>
<td>$1,548.51</td>
<td>$1,032.34</td>
<td>$4,129.34</td>
<td>$1,046.11</td>
<td>$583.71</td>
</tr>
</tbody>
</table>

#### SkillsFuture Earn & Learn Programme Leading to Part-Time Diploma in Engineering (Mechanical – Electrical – Rapid Transit Technology)*

<table>
<thead>
<tr>
<th>Modular Certificates (MC)</th>
<th>Singapore Citizens Below the age of 40</th>
<th>Singapore Citizens Aged 40 and above</th>
<th>Singapore PR</th>
<th>Enhanced Training Support for Full-time Scheme</th>
<th>Workfare Training Support Scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificate in Engineering Mechanics &amp; Materials</td>
<td>$595.13</td>
<td>$396.76</td>
<td>$1,587.02</td>
<td>$409.73</td>
<td>$224.33</td>
</tr>
<tr>
<td>Certificate in Thermofluids Engineering</td>
<td>$595.13</td>
<td>$396.76</td>
<td>$1,587.02</td>
<td>$409.73</td>
<td>$224.33</td>
</tr>
<tr>
<td>Certificate in Industrial Plant Engineering</td>
<td>$546.54</td>
<td>$363.69</td>
<td>$1,454.78</td>
<td>$375.59</td>
<td>$205.64</td>
</tr>
<tr>
<td>Certificate in Engineering Drafting &amp; Design*</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
<td>$179.69</td>
</tr>
<tr>
<td>Certificate in Automation Technology*</td>
<td>$476.69</td>
<td>$317.79</td>
<td>$1,271.16</td>
<td>$328.19</td>
<td>$179.69</td>
</tr>
<tr>
<td><strong>Total Course Fees</strong></td>
<td>$2,689.18</td>
<td>$1,792.79</td>
<td>$5,715.14</td>
<td>$1,851.43</td>
<td>$1,013.68</td>
</tr>
</tbody>
</table>

---

* Include of 18 months of On-Job-Training

---

### Other Fees Payable

<table>
<thead>
<tr>
<th>Fee Description</th>
<th>Singapore Citizens</th>
<th>Singapore PR and Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Fee (per academic year)</td>
<td>$168</td>
<td>$1.88</td>
</tr>
<tr>
<td>Exam Fee (per academic year)</td>
<td>$0</td>
<td>$2.25</td>
</tr>
<tr>
<td>Insurance (GPI) (per academic year)</td>
<td>$1.70</td>
<td>$1.70</td>
</tr>
<tr>
<td>Miscellaneous Fee (per academic year)</td>
<td>$41.99</td>
<td>$41.99</td>
</tr>
<tr>
<td>Students' Union Entrance Fee* (one-time payment upon enrolment)</td>
<td>$5.00</td>
<td>$5.00</td>
</tr>
<tr>
<td>Students' Union Subscription Fee* (per academic year)</td>
<td>$9.00</td>
<td>$9.00</td>
</tr>
</tbody>
</table>

---

* Not subject to GST

The fees shown (inclusive of 7% GST) are indicative as they are based on prevailing funding policies and subject to review. Module Certificate fee is payable on a semester basis.

### TABLE 4: SUMMARY OF FEES FOR DIPLOMA (CONVERSION) (AY2019/2020)

<table>
<thead>
<tr>
<th>Post Diploma Certificates (PDC)</th>
<th>Singapore Citizens Below the age of 40</th>
<th>Singapore Citizens Aged 40 and above</th>
<th>Singapore PR</th>
<th>Enhanced Training Support for Full-time Scheme</th>
<th>Workfare Training Support Scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificate in Network Administration</td>
<td>$421.79</td>
<td>$281.20</td>
<td>$1,124.78</td>
<td>$290.39</td>
<td>$158.99</td>
</tr>
<tr>
<td>Certificate in Computer Networking</td>
<td>$632.69</td>
<td>$421.79</td>
<td>$1,687.18</td>
<td>$435.59</td>
<td>$238.49</td>
</tr>
<tr>
<td><strong>Total Course Fees</strong></td>
<td>$1,054.48</td>
<td>$702.99</td>
<td>$3,311.96</td>
<td>$825.98</td>
<td>$492.48</td>
</tr>
</tbody>
</table>

---

### DIPLOMA (CONVERSION) IN COMPUTER NETWORKING

<table>
<thead>
<tr>
<th>Post Diploma Certificates (PDC)</th>
<th>Singapore Citizens Below the age of 40</th>
<th>Singapore Citizens Aged 40 and above</th>
<th>Singapore PR</th>
<th>Enhanced Training Support for Full-time Scheme</th>
<th>Workfare Training Support Scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificate in Web Design</td>
<td>$421.79</td>
<td>$281.20</td>
<td>$1,124.78</td>
<td>$290.39</td>
<td>$158.99</td>
</tr>
<tr>
<td>Certificate in Content Creation</td>
<td>$421.79</td>
<td>$281.20</td>
<td>$1,124.78</td>
<td>$290.39</td>
<td>$158.99</td>
</tr>
<tr>
<td><strong>Total Course Fees</strong></td>
<td>$843.58</td>
<td>$562.40</td>
<td>$2,246.56</td>
<td>$580.78</td>
<td>$337.98</td>
</tr>
</tbody>
</table>

---

### DIPLOMA (CONVERSION) IN DIGITAL MEDIA CREATION

<table>
<thead>
<tr>
<th>Post Diploma Certificates (PDC)</th>
<th>Singapore Citizens Below the age of 40</th>
<th>Singapore Citizens Aged 40 and above</th>
<th>Singapore PR</th>
<th>Enhanced Training Support for Full-time Scheme</th>
<th>Workfare Training Support Scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificate in Business Analysis &amp; Design</td>
<td>$465.85</td>
<td>$310.57</td>
<td>$1,242.27</td>
<td>$320.73</td>
<td>$175.60</td>
</tr>
<tr>
<td>Certificate in Business Analytics or Business Information Systems</td>
<td>$465.85</td>
<td>$310.57</td>
<td>$1,242.27</td>
<td>$320.73</td>
<td>$175.60</td>
</tr>
<tr>
<td><strong>Total Course Fees</strong></td>
<td>$931.70</td>
<td>$621.14</td>
<td>$2,484.54</td>
<td>$646.47</td>
<td>$351.20</td>
</tr>
</tbody>
</table>
TABLE 5: SUMMARY OF FEES FOR SPECIALIST DIPLOMA (AY2019/2020)

### Post Diploma Certificates (PDC)

<table>
<thead>
<tr>
<th>Certificate Description</th>
<th>Singapore Citizens Below the age of 40</th>
<th>Singapore Citizens Aged 40 and above</th>
<th>Singapore PR</th>
<th>Enhanced Training Support for SME Scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificate in Marketing Essentials                                                     $465.85                                $390.57                               $1,242.27    $320.73                                $175.60</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certificate in Marketing Strategies                                                     $465.85                                $390.57                               $1,242.27    $320.73                                $175.60</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Course Fees</strong>                                                                    <strong>$931.70</strong>                             <strong>$621.14</strong>                             <strong>$2,484.54</strong> <strong>$641.46</strong>                             <strong>$351.20</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Post Diploma Certificates (PDC) - Supply Chain Management & Innovation

<table>
<thead>
<tr>
<th>Certificate Description</th>
<th>Singapore Citizens Below the age of 40</th>
<th>Singapore Citizens Aged 40 and above</th>
<th>Singapore PR</th>
<th>Enhanced Training Support for SME Scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificate in Supply Chain Management                                                  $465.85                                $390.57                               $1,242.27    $320.73                                $175.60</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certificate in Supply Chain Innovation                                                  $465.85                                $390.57                               $1,242.27    $320.73                                $175.60</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Course Fees</strong>                                                                    <strong>$931.70</strong>                             <strong>$621.14</strong>                             <strong>$2,484.54</strong> <strong>$641.46</strong>                             <strong>$351.20</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Post Diploma Certificates (PDC) - Web & Programming

<table>
<thead>
<tr>
<th>Certificate Description</th>
<th>Singapore Citizens Below the age of 40</th>
<th>Singapore Citizens Aged 40 and above</th>
<th>Singapore PR</th>
<th>Enhanced Training Support for SME Scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificate in Web Development Fundamentals                                             $421.79                                $328.12                               $1,124.78    $290.39                                $158.99</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certificate in Web Programming                                                          $421.79                                $328.12                               $1,124.78    $290.39                                $158.99</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Course Fees</strong>                                                                    <strong>$843.58</strong>                             <strong>$656.24</strong>                             <strong>$2,249.56</strong> <strong>$581.78</strong>                             <strong>$357.98</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### OTHER FEES PAYABLE

<table>
<thead>
<tr>
<th>Fee Description</th>
<th>Amount (incl GST)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Fee (per academic year)</td>
<td>$18.63</td>
</tr>
<tr>
<td>Exam Fee (per academic year)</td>
<td>$32.10</td>
</tr>
<tr>
<td>Insurance (GPA) (per academic year)</td>
<td>$1.70</td>
</tr>
<tr>
<td>Miscellaneous Fee (per academic year)</td>
<td>$14.98</td>
</tr>
</tbody>
</table>

The fees shown (inclusive of 7% GST) are indicative as they are based on prevailing funding policies and subject to review. Post Diploma Certificate fee is payable on a semester basis.
### SPECIALIST DIPLOMA IN USER EXPERIENCE & DIGITAL PRODUCT DESIGN

**Post Diploma Certificates (PDC)**  
**Fee Description**  
- **Certificate in User Experience Design**  
  - Singapore Citizens: $405.39  
  - Singapore PR and Others: $270.92  
  - Age 40 and above: $1,083.70  
  - $279.79  
  - $153.19  
- **Certificate in User Interface Design**  
  - Singapore Citizens: $405.39  
  - Singapore PR and Others: $270.92  
  - Age 40 and above: $1,083.70  
  - $279.79  
  - $153.19  
- **Total Course Fees:** $812.56  
  - $541.84  
  - $2,167.40  
  - $959.58  
  - $504.38

### EARN & LEARN PROGRAMME IN DIGITAL CONTENT MARKETING

#### Modules

<table>
<thead>
<tr>
<th>Fee Description</th>
<th>Singapore Citizens</th>
<th>Singapore PR and Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount (incl GST)</td>
<td>Amount (incl GST)</td>
<td></td>
</tr>
<tr>
<td>Class Fee</td>
<td>$188</td>
<td>$188</td>
</tr>
<tr>
<td>Exam Fee</td>
<td>$32.10</td>
<td>$32.10</td>
</tr>
<tr>
<td>Insurance (GPA)</td>
<td>$7.10</td>
<td>$7.10</td>
</tr>
<tr>
<td>Miscellaneous Fee</td>
<td>$14.98</td>
<td>$14.98</td>
</tr>
</tbody>
</table>

The fees shown (inclusive of 7% GST) are indicative as they are based on prevailing funding policies and subject to review. Post Diploma Module Certificate fee is payable on a semester basis.

### TABLE 6: SUMMARY OF FEES FOR ADVANCED DIPLOMA (AY2019/2020)

#### ADVANCED DIPLOMA IN APPLIED FOOD SCIENCE (EARN & LEARN PROGRAMME)

**Post Diploma Certificates (PDC)**  
**Fee Description**  
- **Certificate in Applied Food Science I**  
  - Singapore Citizens: $358.24  
  - Singapore PR and Others: $238.82  
  - Age 40 and above: $955.30  
  - $278.19  
  - $159.07  
- **Certificate in Applied Food Science II**  
  - Singapore Citizens: $358.24  
  - Singapore PR and Others: $238.82  
  - Age 40 and above: $955.30  
  - $278.19  
  - $159.07  
- **Certificate in Applied Food Science III**  
  - Singapore Citizens: $298.53  
  - Singapore PR and Others: $199.02  
  - Age 40 and above: $796.08  
  - $205.53  
  - $112.53  
- **Class Fee (per academic year)**  
  - Singapore Citizens: $1.88  
  - Singapore PR and Others: $1.88  
- **Miscellaneous Fee (per academic year)**  
  - Singapore Citizens: $14.98  
  - Singapore PR and Others: $14.98  

**Total Course Fees:** $1,440.64  
  - $960.44  
  - $3,841.72  
  - $991.84  
  - $543.04

#### ADVANCED DIPLOMA IN BUILDING AUTOMATION & SERVICES

**Post Diploma Certificates (PDC)**  
**Fee Description**  
- **Certificate in Engineering Mathematics & Controls**  
  - Singapore Citizens: $360.16  
  - Singapore PR and Others: $240.11  
  - Age 40 and above: $960.43  
  - $247.96  
  - $135.76  
- **Certificate in Digital Control & Computer Control Systems**  
  - Singapore Citizens: $360.16  
  - Singapore PR and Others: $240.11  
  - Age 40 and above: $960.43  
  - $247.96  
  - $135.76  
- **Certificate in Fieldbus Technology & Process Control**  
  - Singapore Citizens: $360.16  
  - Singapore PR and Others: $240.11  
  - Age 40 and above: $960.43  
  - $247.96  
  - $135.76  
- **Class Fee (per academic year)**  
  - Singapore Citizens: $1.88  
  - Singapore PR and Others: $1.88  
- **Miscellaneous Fee (per academic year)**  
  - Singapore Citizens: $14.98  
  - Singapore PR and Others: $14.98  

**Total Course Fees:** $1,440.64  
  - $960.44  
  - $3,841.72  
  - $991.84  
  - $543.04

#### ADVANCED DIPLOMA IN CHEMICAL ENGINEERING (EARN & LEARN PROGRAMME)

**Post Diploma Certificates (PDC)**  
**Fee Description**  
- **Certificate in Chemical Process Principles**  
  - Singapore Citizens: $194.35  
  - Singapore PR and Others: $126.90  
  - Age 40 and above: $515.60  
  - $227.50  
  - $158.65  
- **Certificate in Chemical Process Design & Operation**  
  - Singapore Citizens: $194.35  
  - Singapore PR and Others: $126.90  
  - Age 40 and above: $515.60  
  - $227.50  
  - $158.65  
- **Certificate in Chemical Process Control, Optimisation & Safety**  
  - Singapore Citizens: $507.02  
  - Singapore PR and Others: $338.01  
  - Age 40 and above: $1,352.05  
  - $349.07  
  - $191.92  
- **Capstone Project**  
  - Singapore Citizens: $120.46  
  - Singapore PR and Others: $120.46  
  - Age 40 and above: $450.18  
  - $192.28  
  - $109.88  

**Total Course Fees:** $1,766.40  
  - $1,164.27  
  - $4,657.07  
  - $1,202.35  
  - $658.30

### OTHER FEES PAYABLE

**Fee Description**  
- **Amount (incl GST)**  
- **Amount (incl GST)**

**Class Fee (per academic year)**  
- Singapore Citizens: $188  
- Singapore PR and Others: $188

**Exam Fee (per academic year)**  
- Singapore Citizens: $32.10  
- Singapore PR and Others: $32.10

**Insurance (GPA)**  
- Singapore Citizens: $7.10  
- Singapore PR and Others: $7.10

**Miscellaneous Fee (per academic year)**  
- Singapore Citizens: $14.98  
- Singapore PR and Others: $14.98

The fees shown (inclusive of 7% GST) are indicative as they are based on prevailing funding policies and subject to review. Post Diploma Module Certificate fee is payable on a semester basis.
### Academic Calendar For AY 2019/2020

<table>
<thead>
<tr>
<th>Orientation Week (for first-year students only)</th>
<th>1 week</th>
<th>Mon 8.4.2019 – Fri 12.4.2019</th>
</tr>
</thead>
</table>

**Semester I**

<table>
<thead>
<tr>
<th>Term 1</th>
<th>7 weeks</th>
<th>Mon 15.4.2019 – Fri 31.5.2019*</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Mid-Semester Test)</td>
<td>1 week</td>
<td>Mon 27.5.2019 – Fri 31.5.2019</td>
</tr>
<tr>
<td>Vacation</td>
<td>3 weeks</td>
<td>Sat 1.6.2019 – Sun 23.6.2019</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Term 2</th>
<th>8 weeks</th>
<th>Mon 24.6.2019 – Fri 16.8.2019*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam Week</td>
<td>2 weeks</td>
<td>Mon 19.8.2019 – Fri 30.8.2019</td>
</tr>
<tr>
<td>Vacation</td>
<td>6 weeks</td>
<td>Sat 31.8.2019 – Sun 13.10.2019</td>
</tr>
</tbody>
</table>

**Semester II**

<table>
<thead>
<tr>
<th>Term 3</th>
<th>8 weeks</th>
<th>Mon 14.10.2019 – Fri 6.12.2019*</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Mid-Semester Test)</td>
<td>1 week</td>
<td>Mon 2.12.2019 – Fri 6.12.2019</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Term 4</th>
<th>7 weeks</th>
<th>Mon 6.1.2020 – Fri 21.2.2020*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam Week</td>
<td>2 weeks</td>
<td>Mon 24.2.2020 – Fri 6.3.2020</td>
</tr>
<tr>
<td>Vacation</td>
<td>6 weeks</td>
<td>Sat 7.3.2020 – Sun 19.4.2020</td>
</tr>
</tbody>
</table>

---

*Vesak Day – 12 May 2019
*Hari Raya Haji – 12 August 2019
+Deepavali – 27 October 2019
^Chinese New Year – 25 & 26 January 2020
Vacation – Subject to any polytechnic activities, e.g. internship
The School of Architecture & the Built Environment is focused on educating and training students to support the built environment industry in Singapore. This involves components of design, infrastructure, construction, facilities and events management set within the environment of Singapore as a Sustainable City of the Future.

Being the only polytechnic that provides a full suite of courses to support the built environment industry, our graduates are much sought after to support architects, civil engineers, interior designers, landscape architects, property developers and owners, event organiser, contractors and suppliers to design and enhance our built environment.

They play an important role in creating concepts and designs that are conducive to quality living and a safe and healthy environment to live, work and play.

In line with the government efforts in making Singapore a smart, green and liveable city, our students are trained in integrating technology with the built environment, enabling a more efficient, comfortable and safe living environment, as well as to design, construct, operate and maintain buildings and infrastructure responsibly and sustainably. They are also conversant with green building practices and Active, Beautiful and Clean (ABC) Waters Design Guidelines in creating a liveable and endearing home, a vibrant and sustainable city.

The different strategies highlighted in the Sustainable Singapore Blueprint and the Master Plan 2014 aim to build townships for all ages that are green, healthy, connected, strong in community interaction and spirit, and to bring quality jobs closer to home. The efforts in making Singapore a great city to live, work and play involve bringing vibrancy and new characteristics to Singapore through selected growth areas such as the Jurong Lake District, Woodlands Regional Centre, Punggol Digital District, Paya Lebar Central and City Centre. It also includes expanding green and recreational spaces, enhancing transport connectivity and accessibility, and enlivening public spaces through good design and programme.

With all these developments in the pipeline, there will be ample opportunities for graduates in the built environment and design field to contribute to creating a sustainable future for Singapore.

**INTERNSHIP PROGRAMME**

In this programme, students are attached to local and overseas firms and corporate establishments in both the public and private sectors. For the Diploma in Architecture, Diploma in Civil Engineering with Business, Diploma in Interior Design and the Diploma in Landscape Architecture, the students undergo a 12-week internship programme during the semester vacation and academic term after their second year of studies. Diploma in Facilities Management and Diploma in Integrated Events & Project Management students undergo a 22-week internship programme during the semester vacation and one semester after their second year of studies. To instil a global mindset in students, many overseas internship programmes have been arranged in recent years.

During the internship programme, lecturers assume the role of liaison officers to guide the students in contributing towards the establishments they are attached to and to help them maximise learning through real-life experiences.

**ASSESSMENT AND PROGRESSION OF STUDENTS**

For students taking the Diploma in Architecture, Diploma in Interior Design and Diploma in Landscape Architecture, the core modules are mainly year-long modules with 100% in-course assessment. A variety of teaching methods and learning experiences (project-based tutorials, case studies, site visits, study trips and research, as well as written tests) are used to develop confidence, independence and competency. Students work in design studios under the personalised guidance of lecturers on their projects and they learn to present in critique sessions. This practice-oriented training gives students a taste of the ‘real’ world. A portfolio review is also conducted at the end of each session to review students’ overall performance.

Students in the Diploma in Facilities Management course are assessed via a combination of course work over the semester and end of semester examination. Course work is in the form of tutorials, lab/practical work, mini-projects/case studies and tests. Some modules are 100% in-course assessed while others have a semester exam component. Year 3 students have to do industry-linked or research projects.

Students in the Diploma in Integrated Events and Project Management course are assessed through a combination of 100% in-course assessment modules and semester examination type modules. In-course assessment is in the form of tutorials, lab/practical work, projects, case studies and tests. Semester exam type modules have an end of semester examination component. Year 2 students have to do industry-linked projects.

Students in the Diploma in Civil Engineering with Business course do a combination of year-long and semester-long modules. Assessment for each module will be by means of continuous course work and semester examinations. Students take a prescribed set of modules in each semester or year. Year 3 students have to do industry-based or applied research projects.

---

*All full-time diploma students are required to take two compulsory Education and Career Guidance Modules in SP. Students will take SP101A: Education and Career Guidance 1 – Personal and Career Development (15 hours) in their first year. In their second year, students will take SP201A: Education and Career Guidance 2 – Career Development (30 hours).*

*All students are required to take one compulsory elective for all diploma modules for one semester in their first year in SP. In their second and third year, students may sign up for an elective as an elective.*
CAREER PROSPECTS

SP graduates with a Diploma in Architecture can be employed in:
- Architectural consulting firms
- Government agencies like the Building and Construction Authority, Housing and Development Board, Urban Redevelopment Authority
- Organisations related to the building industry
- Large firms in other fields with their own in-house architectural divisions
- Companies providing creative services such as computer graphics and animation design

You could be an:
- Architectural Assistant to support in design, development, documentation and presentation.
- Architectural Technologist to assist in technical aspects supporting micro design and detailing.
- Architectural Coordinator on building sites.
- Specialise in niche architectural areas such as BIM, computational parametric design, sustainability or graphic visualisation that leads to opportunities in senior or director positions in design, technical or project management within architectural firms.

Branch into architectural or the built environment related careers such as construction management, building materials/finish or architectural products specialist, or developing visualisation or graphics skills for 3D animation and other creative services.

Our graduates have gained direct entry into Year 2 or Year 3 of degree courses in architecture in both local and overseas universities. A number of our outstanding graduates have also been awarded scholarships locally as well as overseas.

SCHOLARSHIPS

Students who excel academically may apply for the following scholarships:
- SP Scholarship
- School of Architecture & the Built Environment Scholarship
- BCA-Industry Scholarship/Sponsorship
- Post-graduate scholarships available include UBA, BCA, HBO and Fost Far East Organisation to name a few.

You will be enrolled into a three-year full-time programme where most core modules are year-long with a 100% in-course assessment approach.

Your learning will be facilitated using a unique integrated project-based learning approach. You will be taught architectural design techniques, material and technology, history and theory, environmental science and computer software skills from Year 1 to increase your core competency which you will subsequently apply in a crafted design project to enhance your design competency. Pedagogy takes place in unique studio environments, with peer learning and tutor critique sessions forming the backbone of an interactive learning experience.

You will be taught to approach understanding architectural practice in a holistic manner from the conceptual, experimental, historical and theoretical, to the real-world, practical and the hands-on nuts and bolts. You will tackle your project brief by integrating design techniques and methodologies, history and theory of architecture, architectural material and technology, environmental science and sustainability, as well as statutory requirements. You will be trained to understand and see value in documenting your design processes and be made proficient in technical skills dealing with architectural drawings and presentation using several types of software, including CAD, SketchUp and Revit.

Throughout the programme, you will learn to hone critical thinking and decision-making processes in your design, which in turn will help develop your creativity, innovation and entrepreneurship skills. Through a unique internship programme, you will learn to work independently and at the same time learn the values of being a team player. Polytechnic-wide general education modules are incorporated into the curriculum to enable student learning and training to be as broad-based and holistic as possible and to ensure that you are versatile in the knowledge-based and innovation-based economy.

You could be an:
- Architectural Assistant to support in design, development, documentation and presentation.
- Architectural Technologist to assist in technical aspects supporting micro design and detailing.
- Architectural Coordinator on building sites.
- Specialise in niche architectural areas such as BIM, computational parametric design, sustainability or graphic visualisation that leads to opportunities in senior or director positions in design, technical or project management within architectural firms.

Branch into architectural or the built environment related careers such as construction management, building materials/finish or architectural products specialist, or developing visualisation or graphics skills for 3D animation and other creative services.

Our graduates have gained direct entry into Year 2 or Year 3 of degree courses in architecture in both local and overseas universities. A number of our outstanding graduates have also been awarded scholarships locally as well as overseas.

SCHOLARSHIPS

Students who excel academically may apply for the following scholarships:
- SP Scholarship
- School of Architecture & the Built Environment Scholarship
- BCA-Industry Scholarship/Sponsorship
- Post-graduate scholarships available include UBA, BCA, HBO and Fost Far East Organisation to name a few.

You will be enrolled into a three-year full-time programme where most core modules are year-long with a 100% in-course assessment approach.

Your learning will be facilitated using a unique integrated project-based learning approach. You will be taught architectural design techniques, material and technology, history and theory, environmental science and computer software skills from Year 1 to increase your core competency which you will subsequently apply in a crafted design project to enhance your design competency. Pedagogy takes place in unique studio environments, with peer learning and tutor critique sessions forming the backbone of an interactive learning experience.

You will be taught to approach understanding architectural practice in a holistic manner from the conceptual, experimental, historical and theoretical, to the real-world, practical and the hands-on nuts and bolts. You will tackle your project brief by integrating design techniques and methodologies, history and theory of architecture, architectural material and technology, environmental science and sustainability, as well as statutory requirements. You will be trained to understand and see value in documenting your design processes and be made proficient in technical skills dealing with architectural drawings and presentation using several types of software, including CAD, SketchUp and Revit.

Throughout the programme, you will learn to hone critical thinking and decision-making processes in your design, which in turn will help develop your creativity, innovation and entrepreneurship skills. Through a unique internship programme, you will learn to work independently and at the same time learn the values of being a team player. Polytechnic-wide general education modules are incorporated into the curriculum to enable student learning and training to be as broad-based and holistic as possible and to ensure that you are versatile in the knowledge-based and innovation-based economy.

You could be an:
- Architectural Assistant to support in design, development, documentation and presentation.
- Architectural Technologist to assist in technical aspects supporting micro design and detailing.
- Architectural Coordinator on building sites.
- Specialise in niche architectural areas such as BIM, computational parametric design, sustainability or graphic visualisation that leads to opportunities in senior or director positions in design, technical or project management within architectural firms.

Branch into architectural or the built environment related careers such as construction management, building materials/finish or architectural products specialist, or developing visualisation or graphics skills for 3D animation and other creative services.

Our graduates have gained direct entry into Year 2 or Year 3 of degree courses in architecture in both local and overseas universities. A number of our outstanding graduates have also been awarded scholarships locally as well as overseas.
CAREER PROSPECTS
Graduates of this diploma programme will be able to seek rewarding careers with government agencies such as HDB, BCA, URA, JTC, PUB, NEA, SLA and LTA in the development and upkeep of Singapore’s civil engineering infrastructure and natural resources. Our graduates are also employed by civil engineering consultants to assist and support engineers and planners. Graduates also work with civil engineering and building contractors.

Over the years, many of our graduates have started their own businesses in many different areas: consultancy, inspection, contracting, management services, specialists subcontracting and materials suppliers for the built and natural environment. They qualify to register under various trade categories with the Building and Construction Authority (BCA) when starting their businesses.

Our graduates can also pursue further studies at local and overseas universities for a degree in civil engineering or in various business options. They are typically given exemptions of at least one year from their degree courses.

SCHOLARSHIPS
Students who excel academically may apply for the following scholarships:
- SP Engineering Scholarship
- School of Architecture & the Built Environment Scholarship
- Yongnam Bursary
- Singapore Structural Steel Society Scholarship
- BCA-Industry Scholarship/Sponsorship
- Yogarajah Scholarship and Bursary Fund
- Sarojini Devi Award
- American Concrete Institute (Singapore Chapter) Scholarship

Diploma in Civil Engineering with Business (DCEB)

Civil Engineering transforms visions of the built environment into reality. It encompasses more than just building new housing estates and MRT lines. It is a challenging and intriguing profession as it is one of the main contributors to the physical world we live in now or in future. Students enrolled into the broad-based and multi-disciplinary Diploma in Civil Engineering with Business (DCEB) course will be equipped with both Civil Engineering and Business knowledge and skills. During the three years of the diploma, students will learn different disciplines of Civil Engineering such as Structural Engineering, Transportation Engineering, Geotechnical Engineering, Geomatics, Environmental and Water Technology, Project Management, Green Buildings for Sustainability and also business modules.

Students’ learning will be enhanced with Challenged-Based Learning pedagogy. Conceive-Design-Implement-Operate (CDIO) and out-of-classroom activities. There will be opportunities to work on a challenging, yet fun capstone project each year. In Year 1, students will be challenged with the tallest skyscraper model design, the Strongest yet Lightest Bridge in Year 2 and an Earthquake Resistant Structure that will be tested on the Earthquake Simulator in Year 3.

A recent survey of current and prospective students and other stakeholders has revealed the course to be well-accepted and attractive. There is a high demand for our graduates to support the ever-changing mankind made living habitats and the built environment. Exciting projects include the construction of Changi Airport’s Jewel and T5, Jurong Lake District, Tuas Megaport, Deep Tunnel Sewage System (Phase 2), Thomson East Coast MRT Line and underground spaces.

The course offers:
- A 12-week internship/mentorship
- Final Year Projects which may involve collaboration with the industry and R&D areas
- Overseas study trips for global exposure
- A Conceive-Design-Implement-Operate (CDIO) framework that prepares students to be work-ready, life-ready and world-ready
- Three business-related modules

Graduates of this diploma programme will be able to seek rewarding careers with government agencies such as HDB, BCA, URA, JTC, PUB, NEA, SLA and LTA in the development and upkeep of Singapore’s civil engineering infrastructure and natural resources. Our graduates are also employed by civil engineering consultants to assist and support engineers and planners. Graduates also work with civil engineering and building contractors.

Over the years, many of our graduates have started their own businesses in many different areas: consultancy, inspection, contracting, management services, specialists subcontracting and materials suppliers for the built and natural environment. They qualify to register under various trade categories with the Building and Construction Authority (BCA) when starting their businesses.

Our graduates can also pursue further studies at local and overseas universities for a degree in civil engineering or in various business options. They are typically given exemptions of at least one year from their degree courses.

SCHOLARSHIPS
Students who excel academically may apply for the following scholarships:
- SP Engineering Scholarship
- School of Architecture & the Built Environment Scholarship
- Yongnam Bursary
- Singapore Structural Steel Society Scholarship
- BCA-Industry Scholarship/Sponsorship
- Yogarajah Scholarship and Bursary Fund
- Sarojini Devi Award
- American Concrete Institute (Singapore Chapter) Scholarship

COURSE MODULES

**FULL- TIME**  **FIRST YEAR**  **HOURS**

| Semester |  |  |  |
|----------|-----------------|-----------------|
| Year-long | BE8117 Introduction to Civil Engineering & Building | 75 |
|         | BE8122 CAD with Building Information Modelling (BIM) | 75 |
| Semester 1 | MCL151 Basic Mathematics | 60 |
|         | LC0154 Communicating for Personal and Team Effectiveness | 30 |
|         | LC0160 Critical and Analytical Thinking | 30 |
| Semester 2 | MCL152* Engineering Mathematics I | 60 |
|         | LC0156 Communicating for Project Effectiveness (Report) | 30 |
|         | Elective I | 45 |
|         | LC0161 Narrative Thinking | 30 |
| Stage 1A | BE8103 Economics | 45 |
|         | BE8209 Hydrology & Hydraulics | 75 |
| Stage 1B | BE8210 Geomatics I & GIS | 60 |
|         | BE8214 Structural Mechanics | 75 |
|         | IA0002 Internship Programme 12 weeks |

**FULL- TIME**  **SECOND YEAR**  **HOURS**

| Semester 2 |  |  |  |
|-----------|-----------------|-----------------|
| Semester 2 | BE8201 Reinforced Concrete Design & CAD | 75 |
|         | BE8207 Civil Engineering Construction Measurement | 75 |
|         | BE8209 Geomatics 2 & GSP | 60 |
| Semester 2 | MCL2300 Engineering Mathematics II | 60 |
|         | LC0167 Communicating for Professional Effectiveness | 30 |
| Stage 2A | BE8202 Structural Analysis | 75 |
|         | BE8206 Safety, Health & Environmental Management | 75 |
|         | BE8215 Structural BIM e-Submission | 60 |
| Stage 2B | BE8213 Geotechnical Engineering | 90 |
|         | BE8212 Water Technology | 90 |
|         | Elective 3 | 45 |

**FULL- TIME**  **THIRD YEAR**  **HOURS**

| Semester 3 |  |  |  |
|-----------|-----------------|-----------------|
| Semester 3 | BE8316 Entrepreneurship | 45 |
|         | BE8313 Transportation Engineering | 60 |
| Semester 3 | BE8307 Civil Engineering Project (Report) | 75 |
|         | BE8310 Civil Engineering Project (e-Submission) | 60 |
|         | BE8319 Accounts & Finance | 45 |
|         | IA0002 Internship Programme 12 weeks |

**Electives**

- Those who have credit pass in Additional Mathematics are exempted from MCL2300 and will take MCL2300 in Semester 2.
- Those who passed MCL152 in Semester 1 to take MCL2300 in Semester 2.

For a list of electives offered, please visit www.sp.edu.sg

**Additional:**
- Students who excel academically may apply for the following scholarships:
  - SP Engineering Scholarship
  - School of Architecture & the Built Environment Scholarship
  - Yongnam Bursary
  - Singapore Structural Steel Society Scholarship
  - BCA-Industry Scholarship/Sponsorship
  - Yogarajah Scholarship and Bursary Fund
  - Sarojini Devi Award
  - American Concrete Institute (Singapore Chapter) Scholarship
Architecture and the Built Environment

Facilities Management is a profession that prepares graduates to meet the needs of the increasingly important facilities management industry. The demand for facilities management services has grown exponentially, with growing demand for building and infrastructure development and increased emphasis on cost efficient and sustainable buildings and its infrastructure with the purpose of improving the quality of life of people and optimising the use and management of workplaces to deliver the organisation’s strategic objectives.

This course will train students in a combination of facilities management, business and technical skills to develop their versatility and give them a head start in their careers. These include leisure amenities management, procurement, project management, environmental management and sustainability, hospitality services, safety, health and security, electrical and plumbing services, mechanical services, fire safety management, town council and strata management, strategic asset enhancement and emerging information technology in facilities management, among others.

Upon successful completion of this course, students will also be awarded with two additional certificates:
- Fire Safety Manager
- bizSAFE Level 2 (Risk Management)

Some of the positions they can choose to fill include:
- Property Executive
- Facilities Executive
- Building Executive
- Project Coordinator
- Contracts/Procurement Executive
- Operations Executive

A career is an exciting career that offers leadership opportunities in hotels, resorts, clubs, leisure industry, serviced apartments, commercial and industrial properties, public and private housing, hospitals and airports, etc.

COURSE MODULES

The Diploma in Facilities Management (DFM) is a three-year full-time course that prepares graduates to meet the needs of the increasingly important facilities management industry.

The demand for facilities management services has grown exponentially, with growing demand for building and infrastructure development and increased emphasis on cost efficient and greener buildings.

Facilities Management is a profession encompassing multiple disciplines that integrate people, place, process and technology to ensure the efficient and effective use of facilities for its intended purpose. It is an integrated approach to operate, maintain, improve and adapt the buildings and its infrastructure with the purpose of improving the quality of life of people and optimising the use and management of workplaces to deliver the organisation’s strategic objectives.

This course will train students in a combination of facilities management, business and technical skills to develop their versatility and give them a head start in their careers. These include leisure amenities management, procurement, project management, environmental management and sustainability, hospitality services, safety, health and security, electrical and plumbing services, mechanical services, fire safety management, town council and strata management, strategic asset enhancement and emerging information technology in facilities management, among others.

Students’ learning will be further enhanced through out-of-classroom activities, study trips and industry-linked projects. In Year 3, students will embark on a semester-long enhanced internship programme that will provide them with opportunities to put classroom knowledge to practice.

Upon successful completion of this course, students will also be awarded with two additional certificates:
- Fire Safety Manager
- bizSAFE Level 2 (Risk Management)

Some of the positions they can choose to fill include:
- Property Executive
- Facilities Executive
- Building Executive
- Project Coordinator
- Contracts/Procurement Executive
- Operations Executive

Career prospects: Graduates of this course will find exciting facilities management employment opportunities in hotels, resorts, clubs, leisure industry, serviced apartments, commercial and industrial properties, public and private housing, hospitals and airports, etc.

CAREER PROSPECTS

Some of the positions they can choose to fill include:
- Property Executive
- Facilities Executive
- Building Executive
- Project Coordinator
- Contracts/Procurement Executive
- Operations Executive

The Diploma in Facilities Management (DFM) is a three-year full-time course that prepares graduates to meet the needs of the increasingly important facilities management industry.

The demand for facilities management services has grown exponentially, with growing demand for building and infrastructure development and increased emphasis on cost efficient and greener buildings.

Facilities Management is a profession encompassing multiple disciplines that integrate people, place, process and technology to ensure the efficient and effective use of facilities for its intended purpose. It is an integrated approach to operate, maintain, improve and adapt the buildings and its infrastructure with the purpose of improving the quality of life of people and optimising the use and management of workplaces to deliver the organisation’s strategic objectives.

This course will train students in a combination of facilities management, business and technical skills to develop their versatility and give them a head start in their careers. These include leisure amenities management, procurement, project management, environmental management and sustainability, hospitality services, safety, health and security, electrical and plumbing services, mechanical services, fire safety management, town council and strata management, strategic asset enhancement and emerging information technology in facilities management, among others.

Students’ learning will be further enhanced through out-of-classroom activities, study trips and industry-linked projects. In Year 3, students will embark on a semester-long enhanced internship programme that will provide them with opportunities to put classroom knowledge to practice.

Upon successful completion of this course, students will also be awarded with two additional certificates:
- Fire Safety Manager
- bizSAFE Level 2 (Risk Management)

Some of the positions they can choose to fill include:
- Property Executive
- Facilities Executive
- Building Executive
- Project Coordinator
- Contracts/Procurement Executive
- Operations Executive

The Diploma in Facilities Management (DFM) is a three-year full-time course that prepares graduates to meet the needs of the increasingly important facilities management industry.

The demand for facilities management services has grown exponentially, with growing demand for building and infrastructure development and increased emphasis on cost efficient and greener buildings.

Facilities Management is a profession encompassing multiple disciplines that integrate people, place, process and technology to ensure the efficient and effective use of facilities for its intended purpose. It is an integrated approach to operate, maintain, improve and adapt the buildings and its infrastructure with the purpose of improving the quality of life of people and optimising the use and management of workplaces to deliver the organisation’s strategic objectives.

This course will train students in a combination of facilities management, business and technical skills to develop their versatility and give them a head start in their careers. These include leisure amenities management, procurement, project management, environmental management and sustainability, hospitality services, safety, health and security, electrical and plumbing services, mechanical services, fire safety management, town council and strata management, strategic asset enhancement and emerging information technology in facilities management, among others.

Students’ learning will be further enhanced through out-of-classroom activities, study trips and industry-linked projects. In Year 3, students will embark on a semester-long enhanced internship programme that will provide them with opportunities to put classroom knowledge to practice.

Upon successful completion of this course, students will also be awarded with two additional certificates:
- Fire Safety Manager
- bizSAFE Level 2 (Risk Management)

Some of the positions they can choose to fill include:
- Property Executive
- Facilities Executive
- Building Executive
- Project Coordinator
- Contracts/Procurement Executive
- Operations Executive

The Diploma in Facilities Management (DFM) is a three-year full-time course that prepares graduates to meet the needs of the increasingly important facilities management industry.

The demand for facilities management services has grown exponentially, with growing demand for building and infrastructure development and increased emphasis on cost efficient and greener buildings.

Facilities Management is a profession encompassing multiple disciplines that integrate people, place, process and technology to ensure the efficient and effective use of facilities for its intended purpose. It is an integrated approach to operate, maintain, improve and adapt the buildings and its infrastructure with the purpose of improving the quality of life of people and optimising the use and management of workplaces to deliver the organisation’s strategic objectives.

This course will train students in a combination of facilities management, business and technical skills to develop their versatility and give them a head start in their careers. These include leisure amenities management, procurement, project management, environmental management and sustainability, hospitality services, safety, health and security, electrical and plumbing services, mechanical services, fire safety management, town council and strata management, strategic asset enhancement and emerging information technology in facilities management, among others.

Students’ learning will be further enhanced through out-of-classroom activities, study trips and industry-linked projects. In Year 3, students will embark on a semester-long enhanced internship programme that will provide them with opportunities to put classroom knowledge to practice.

Upon successful completion of this course, students will also be awarded with two additional certificates:
- Fire Safety Manager
- bizSAFE Level 2 (Risk Management)

Some of the positions they can choose to fill include:
- Property Executive
- Facilities Executive
- Building Executive
- Project Coordinator
- Contracts/Procurement Executive
- Operations Executive

The Diploma in Facilities Management (DFM) is a three-year full-time course that prepares graduates to meet the needs of the increasingly important facilities management industry.

The demand for facilities management services has grown exponentially, with growing demand for building and infrastructure development and increased emphasis on cost efficient and greener buildings.

Facilities Management is a profession encompassing multiple disciplines that integrate people, place, process and technology to ensure the efficient and effective use of facilities for its intended purpose. It is an integrated approach to operate, maintain, improve and adapt the buildings and its infrastructure with the purpose of improving the quality of life of people and optimising the use and management of workplaces to deliver the organisation’s strategic objectives.

This course will train students in a combination of facilities management, business and technical skills to develop their versatility and give them a head start in their careers. These include leisure amenities management, procurement, project management, environmental management and sustainability, hospitality services, safety, health and security, electrical and plumbing services, mechanical services, fire safety management, town council and strata management, strategic asset enhancement and emerging information technology in facilities management, among others.

Students’ learning will be further enhanced through out-of-classroom activities, study trips and industry-linked projects. In Year 3, students will embark on a semester-long enhanced internship programme that will provide them with opportunities to put classroom knowledge to practice.

Upon successful completion of this course, students will also be awarded with two additional certificates:
- Fire Safety Manager
- bizSAFE Level 2 (Risk Management)

Some of the positions they can choose to fill include:
- Property Executive
- Facilities Executive
- Building Executive
- Project Coordinator
- Contracts/Procurement Executive
- Operations Executive

The Diploma in Facilities Management (DFM) is a three-year full-time course that prepares graduates to meet the needs of the increasingly important facilities management industry.

The demand for facilities management services has grown exponentially, with growing demand for building and infrastructure development and increased emphasis on cost efficient and greener buildings.

Facilities Management is a profession encompassing multiple disciplines that integrate people, place, process and technology to ensure the efficient and effective use of facilities for its intended purpose. It is an integrated approach to operate, maintain, improve and adapt the buildings and its infrastructure with the purpose of improving the quality of life of people and optimising the use and management of workplaces to deliver the organisation’s strategic objectives.

This course will train students in a combination of facilities management, business and technical skills to develop their versatility and give them a head start in their careers. These include leisure amenities management, procurement, project management, environmental management and sustainability, hospitality services, safety, health and security, electrical and plumbing services, mechanical services, fire safety management, town council and strata management, strategic asset enhancement and emerging information technology in facilities management, among others.

Students’ learning will be further enhanced through out-of-classroom activities, study trips and industry-linked projects. In Year 3, students will embark on a semester-long enhanced internship programme that will provide them with opportunities to put classroom knowledge to practice.

Upon successful completion of this course, students will also be awarded with two additional certificates:
- Fire Safety Manager
- bizSAFE Level 2 (Risk Management)

Some of the positions they can choose to fill include:
- Property Executive
- Facilities Executive
- Building Executive
- Project Coordinator
- Contracts/Procurement Executive
- Operations Executive

Scans are available at the following locations:
- Cross Cultural Studies 45
- Integrated Project 30
- Procurement & Project Management 60
- Strategic Asset Enhancement 60
- Maintenance of M&E Services 60
- Building Information Technology 60
- Design Thinking for Social Innovation 45
- Internship Programme 22 weeks

For a list of electives offered, please visit www.sp.edu.sg
Graduates of this course can find suitable employment in the booming events and MICE sectors — event management organisations, venues and service providers, large private sector organisations in all economic sectors such as telcos, media companies, IT companies and banks which organise corporate and promotional activities, government ministries and statutory boards.

Some of the positions they can choose to work in include:
- Event Manager/Executive
- Operations/Project Manager/Executive
- Client Experience Manager/Executive
- Event Marketing and Sales Manager/Executive
- Conference Manager/Executive
- Exhibition Manager/Executive
- Sponsorship Sales Manager/Executive

Graduates can also gain entry to relevant degree courses in local and overseas universities. Overseas universities normally grant our graduates at least one year of exemption from their three-year degree courses.

### COURSE MODULES

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
<th>HOURS</th>
<th>SECOND YEAR</th>
<th>HOURS</th>
<th>THIRD YEAR</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE2513 Principles of Management</td>
<td>60</td>
<td>BE2609 Integrated Project</td>
<td>90</td>
<td>BE2714 Cross Cultural Studies</td>
<td>45</td>
</tr>
<tr>
<td>BE2516 Law</td>
<td>60</td>
<td>BE2610 Logistics &amp; Site Operations</td>
<td>60</td>
<td>BE2719 Venue &amp; Services Management</td>
<td>60</td>
</tr>
<tr>
<td>BE2517 Fundamentals of Event Management</td>
<td>60</td>
<td>BE2613 Project Management</td>
<td>60</td>
<td>BE2720 Public Relations &amp; Partnership Management</td>
<td>60</td>
</tr>
<tr>
<td>BE2518 Drawing and Visualisation</td>
<td>60</td>
<td>BE2614 Environmental Safety &amp; Health</td>
<td>60</td>
<td>BE2721 Experience Management</td>
<td>45</td>
</tr>
<tr>
<td>BE2519 Fundamentals of Facilities Management</td>
<td>60</td>
<td>BE2618 Event Budgeting &amp; Financials</td>
<td>60</td>
<td>BE2722 Resource Procurement &amp; Negotiation</td>
<td>60</td>
</tr>
<tr>
<td>LC0160 Critical and Analytical Thinking</td>
<td>30</td>
<td>Elective 1</td>
<td>45</td>
<td>LC0267 Communicating for Professional Effectiveness</td>
<td>30</td>
</tr>
<tr>
<td>BE2520 Events Experience</td>
<td>45</td>
<td>Elective 3</td>
<td>45</td>
<td>Elective 2</td>
<td>45</td>
</tr>
<tr>
<td>BE2521 Audio Visual Systems</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BE2523 Economics</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BE2524 Principles of Marketing</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BE2525 Creative Media Tech</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC0261 Narrative Thinking</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC0264 Communicating for Personal &amp; Team Effectiveness</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BE2611 MICE Management</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BE2618 Analytics &amp; Info Management</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BE2620 Event Materials &amp; Facilities Construction</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC0366 Communicating for Project Effectiveness (Report)</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC0362 Design Thinking for Social Innovation / Design Thinking for Social Innovation (Overseas)</td>
<td>45</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective 2</td>
<td>45</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### ENHANCED INTERNSHIP PROGRAMME

All full-time Year 3 students are divided into two groups. One group will begin with the academic modules in Semester 1 before proceeding to participate in an Enhanced Internship Programme in Semester 2. The other group will begin with the Enhanced Internship Programme and continue with the academic modules in Semester 2.

### SCHOLARSHIPS

Students who excel academically may apply for the following scholarships:
- BCA-Industry Scholarship
- School of Architecture & the Built Environment Scholarship
- SP Scholarship
- BCA-Industry Scholarship/Sponsorship

---

The Diploma in Integrated Events & Project Management (DEPM) course prepares students to meet the needs of the rapidly growing events industry. The Singapore Tourism Board (STB) recognises MICE (Meetings, Incentive, Conventions and Exhibitions) as a key area in the promotion of Singapore as a top destination for tourism/business travel. The Singapore Tourism Board (STB) recognises MICE (Meetings, Incentive, Conventions and Exhibitions) as a key area in the promotion of Singapore as a tourist/business travel destination and is committed to building Singapore’s leadership position as a top destination for MICE. Today, Singapore is ranked as one of the most popular convention cities in the world having hosted many international events/conferences such as IMF-World Bank meetings and the Singapore International Water Week.

Singapore has also successfully organised various cultural and sports events such as the Chingay Parade, Youth Olympic Games and the Singapore Grand Prix. In view of the diverse range of events and the skills required, students will be trained with a combination of event management skills, business management skills and technical skills. These include event creation and branding, event marketing and promotion, public relations, logistics, materials, costing and budgeting, audio visual systems, procurement, project management, industry specific IT applications, etc.

DEPM emphasises experiential and authentic learning where students plan and manage school events in Year 1; collaborate with industries for industry-linked events in Year 2 before embarking on a semester-long internship in Year 3. This is further reinforced through out-of-classroom activities such as learning journeys, site visits and competitions locally and overseas.

Besides being work-ready, Critical and Analytical Thinking and Narrative Thinking modules are also incorporated in the curriculum to prepare students to be life-ready and world-ready. Amongst others, students will learn to think critically, develop good analytical skills, enhance their creativity as well as inculcate the right work ethics and values.

For more information, please visit the DEPM website.
The Diploma in Interior Design (DID) is a three-year full-time course that holistically prepares students for the design industry. Through guided design studio projects, students are equipped with relevant design and theoretical knowledge to question, research, ideate and be creative. Accompanied with related technical skills and competencies to communicate both effectively and professionally.

Our Interior Design programme focuses on spatial design, marrying materials, lighting and colour together into interior spaces that create experiences, moods and ambience to enhance people’s everyday lives. We explore on an intimate scale, the way people use space and how the design of the space has an impact on its inhabitants.

The hands-on studio-based environment helps inculcate the maker culture in students, as well as promote independent thinking and teamwork in an interior design practice. Join us in our fully immersive design culture, incorporating a rigorous curriculum from exploratory projects, study trips to workshops with industry and other educational institutions.

If you are intrigued by the design of space, transforming the experience of everyday life and have a curious mind to experiment with materials – you are the budding designer we want!

**CAREERS PROSPECTS**

SP graduates with a Diploma in Interior Design can be employed in:
- Architectural consulting firms (Interior Design Department)
- Exhibition / Stage Design firms
- Hotel chains with in-house design department
- Interior Design firms
- Retail firms with in-house design department
- 3D Visualisation firms

You could be:
- Design Executive (Sales)
- Exhibition Designer
- Interior Designer
- Perspective Artist
- Spatial Planner
- Stage-set designer
- Visual Merchandiser
- Walk-through Animator

Our graduates have gained direct entry into Year 2 or Year 3 degree courses in Interior Design in both local and overseas universities.

**SCHOLARSHIPS**

Students who excel academically may apply for the following scholarships:
- SP Scholarship
- School of Architecture & the Built Environment Scholarship
- BCA-Industry Scholarship/Sponsorship

**COURSE MODULES**

**FIRST YEAR**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE411Z</td>
<td>Design Theory and Research 1</td>
<td>60</td>
</tr>
<tr>
<td>BE412Z</td>
<td>Interior Design Studio 1</td>
<td>240</td>
</tr>
<tr>
<td>BE413Z</td>
<td>Materials and Technology 1</td>
<td>90</td>
</tr>
<tr>
<td>BE414Z</td>
<td>Interior Design Communication 1</td>
<td>120</td>
</tr>
</tbody>
</table>

**SECOND YEAR**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE422Z</td>
<td>Interior Design Studio 2</td>
<td>300</td>
</tr>
<tr>
<td>BE423Z</td>
<td>Materials and Technology 2</td>
<td>120</td>
</tr>
<tr>
<td>BE424Z</td>
<td>Design Theory &amp; Research 2</td>
<td>60</td>
</tr>
<tr>
<td>BE424Z</td>
<td>Interior Design Communication 2</td>
<td>90</td>
</tr>
</tbody>
</table>

**THIRD YEAR**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE431Z</td>
<td>Design Theory &amp; Research 3</td>
<td>60</td>
</tr>
<tr>
<td>BE432Z</td>
<td>Interior Design Studio 3</td>
<td>210</td>
</tr>
<tr>
<td>BE433Z</td>
<td>Materials and Technology 3</td>
<td>90</td>
</tr>
<tr>
<td>BE434Z</td>
<td>Interior Design Communication 3</td>
<td>75</td>
</tr>
</tbody>
</table>

For a list of electives offered, please visit www.sp.edu.sg
Diploma in Landscape Architecture (DLA) 

Diploma in Landscape Architecture is a three-year full-time course that will prepare designers for landscape architecture and allied professions, who are competent in theory and practice in landscape design. A good foundation in horticulture and environmental awareness will balance the emphasis on the integrated design approach of landscape and architecture. The course will prepare work-ready graduates for the industry with life skills and competency in landscape design and construction principles, documentation, presentation and computer drafting skills. Through this practice-oriented training during internship, students also learn to be independent workers as well as team players in landscape architectural practice. SPEAR modules are also incorporated into the programme to provide a broad-based training for our graduates to be versatile in the knowledge-based economy.

CAREER PROSPECTS
DLA graduates can be employed in a variety of positions that offer many challenges:
- Assistants to landscape architects, architects, planners and other parallel professions
- Landscape designers in organisations such as National Parks Board, Jurong Bird Park, Singapore Zoological Gardens, Housing and Development Board (HDB), etc.
- Entrepreneurs offering a design and build contract package in landscaping
- Middle management personnel in town councils to coordinate and manage parks and open spaces
- Freelance landscape designers offering design services in the region

COURSE MODULES

All core modules are mainly year-long with 100% in-course assessment. Modules will cover an interesting mix of design, technology, social-environment related domains with generic knowledge for a broad-based training.

SCHOLARSHIPS
Students who excel academically may apply for the following scholarships:
- SP Scholarship
- School of Architecture & the Built Environment Scholarship
- Singapore Garden Society Scholarship
- BCA-Industry Scholarship/Endowment

Full-time First Year Hours

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Module Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE5102</td>
<td>Landscape Design Studio I</td>
<td>240</td>
</tr>
<tr>
<td>BE5112</td>
<td>Plants &amp; Landscape Technology</td>
<td>180</td>
</tr>
<tr>
<td>BE5122</td>
<td>History &amp; Theory of Landscape Design I</td>
<td>120</td>
</tr>
<tr>
<td>BE5132</td>
<td>Environmental Systems &amp; Processes</td>
<td>120</td>
</tr>
<tr>
<td>LC0154</td>
<td>Communicating for Personal &amp; Team Effectiveness</td>
<td>30</td>
</tr>
<tr>
<td>LC0155</td>
<td>Communicating for Project Effectiveness (Proposal)</td>
<td>30</td>
</tr>
<tr>
<td>LC0160</td>
<td>Critical and Analytical Thinking</td>
<td>30</td>
</tr>
<tr>
<td>LC0161</td>
<td>Narrative Thinking</td>
<td>30</td>
</tr>
<tr>
<td>Elective 1</td>
<td></td>
<td>45</td>
</tr>
</tbody>
</table>

Full-time Second Year Hours

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Module Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE5202</td>
<td>Landscape Design Studio II</td>
<td>240</td>
</tr>
<tr>
<td>BE5212</td>
<td>Plants &amp; Sky-Rise Technology</td>
<td>150</td>
</tr>
<tr>
<td>BE5222</td>
<td>History &amp; Theory of Landscape Design II</td>
<td>120</td>
</tr>
<tr>
<td>BE5232</td>
<td>Computer-Aided Design &amp; Presentation</td>
<td>150</td>
</tr>
<tr>
<td>BE5200</td>
<td>Project Management in Landscape Architecture II</td>
<td>30</td>
</tr>
<tr>
<td>LC0157</td>
<td>Communicating for Professional Effectiveness</td>
<td>30</td>
</tr>
<tr>
<td>LC0162</td>
<td>Design Thinking for Social Innovation</td>
<td>45</td>
</tr>
<tr>
<td>Elective 2</td>
<td></td>
<td>45</td>
</tr>
<tr>
<td>Elective 3</td>
<td></td>
<td>45</td>
</tr>
</tbody>
</table>
CONTINUING EDUCATION

Persons holding a relevant SP diploma or equivalent qualification may apply to attend the following extramural courses:

- BIM Basics
- BIM Intermediate
- BIM Advanced
- Environmental Control Officers’ Course
- Fire Safety Manager
- Geospatial 101
- Introduction to WSH (Design for Safety) Regulation
- Part-Time Diploma in Quantity Surveying (Measurement & Contract Administration)
- Real Estate Valuation
- Specialist Diploma in Building Information Modelling Management
- Specialist Diploma in Civil Engineering (Productivity & Technology)
- Estate Management
- Water Efficiency Manager Course
- Workplace Safety & Health (WSH) course (Level A, B, C & D)
- Risk Management & Event Planning
- Applications of WSH Guidelines in Event Management
- Procurement Management
- Contract Administration

These courses are offered from time to time. For more information please see our website at www.pace.spedu.org or contact our hotline at: 6772 1288 or e-mail us at: pace@sp.edu.sg

DESIGN STUDIOS/ LABORATORIES/ WORKSHOPS

The Dream Builders 1 and Dream Builders 2 provide holistic lab environment for students to experiment Project and Challenge Based pedagogy through CDIO framework to cultivate the “I Dream”, “I Can” and “I Want” attitude. The labs are not only equipped with a range of structural, mechanical, electrical and building diagnostic equipment for students experiments but also cater for the needs of project work with design and prototyping elements. Being developed to be a showcase for exhibiting outstanding students’ project work, the labs are ideal for hosting competitions and conducting school promotion and student activities to foster ties and horizontal linkages among the students, users and visitors.

The FM Lab is integrated with the Building Services Lab to provide learning spaces for building services and facilities management training. The learning centre has a food and beverage area, a fire command centre, which are well equipped with furniture, building services equipment and fixtures such as sanitary, electrical, lighting, air-conditioning, fire safety, security and telecommunication systems, etc. to enhance the teaching of both the building services as well as the facilities management modules.

The CE e-Studios consist of two labs, equipped with more than 20 Mac PC systems. The studios provide facilities for students to use specialised computer software for their assignments during the course of studies. Some of these software are ArcGIS suite, SAP2000 and Autodesk suites of products and BIM tools. In these labs, Autodesk suite of software are also available for students.

The Design Studios are equipped with 2D documentation and 3D modeling and visualisation software such as SketchUp Pro and Autodesk suite to facilitate studio-based teaching and learning. The design studios are designed to encourage personalised guidance by lecturers through interaction during tutorials. Students’ works are also displayed for independent learning and sharing among peers. In addition, a laser cutter is set up on one of the studios that caters for the needs of physical model making and design. 3D Milling machine as well as 3D printers are also available for students’ use.

The Environmental Lab is equipped with analytical instruments for the testing of water and wastewater samples, jar tests and hydrology studies, testing equipment for measurements in pipe and open channel, determination of pipe friction and fitting losses and the study of open channel flow characteristics. Hands-on experiments are designed to help students reinforce their understanding of modules such as Water Technology and Hydrology & Hydraulics.

The Geomatics Laboratory has state-of-the-art surveying instruments to use specialised computer software for their assignments during the course of studies. Some of these software are ArcGIS suite, SAP2000 and Autodesk suites of products and BIM tools. In these labs, Autodesk suite of software are also available for students.

The FM e-Studios consist of two labs, equipped with more than 12 PC systems. The studios provide facilities for students to use specialised computer software for their assignments and course of studies. Some of these software are Adobe suite and Autodesk suite, as well as OPERA system. The labs are also equipped with scanning and printing services.

The fabSTUDIO is an initiative aimed to create awareness of digital fabrication through sharing of knowledge and conducting of short courses for staff and students. Located at workshop 415, fabSTUDIO houses a centralized digital fabrication facility with studio spaces that fosters a cross-disciplinary community within ABE. It is equipped with wide range of machines such as laser cutters, 3D printers, CNC miller, high-end Graphical CAD Workstations, A1/ A0 size colour Plotter and photography/ videography green room.

With the digital fabrication machines, state-of-the-art supporting facilities and spaces, students and staff are able to commune, utilize, explore and be creative at turning concepts into reality.

The Event Management Office is CDIO framed office to facilitate students to support students in the conduct of their event projects. It provides a conducive space for students to communicate and execute their event projects.

The Black Box is another space to facilitate students’ exploration of event ideas. It is designed with a vibrant ambiance and writable walls to encourage students’ active visualisation and verbalisation of their event concepts and processes. Excellent works of students are also displayed here for sharing among peers.

The Landscape Outdoor Learning Laboratory provides facilities for hands-on activities in landscape construction, horticulture, plant propagation and plant maintenance. It includes an enclosed nursery area, propagation facilities, plant benches for growing potted plants equipped with automatic irrigation system, metal frame structures for green wall and an area for landscape design construction, hardcape materials and testing. It is provided with facilities for demo and workshops to be carried out in an outdoor environment. In the nursery, students will learn methods of plant propagation, plant growth and maintenance requirements for various type of ornamental and edible plants. They will have the opportunity to mix different types of planting media and experience basic plant maintenance and plant identification. The landscape construction and testing area, allows students to work with the hardcape materials and the various techniques of planting media, planting tools and workplace safety. The Landscape Outdoor Learning Laboratory is integrated with the surrounding landscape spaces to further enrich students’ learning experience.

The Events Space is an incubating ground for students to learn, plan and simulate different events through a versatile mini performing theatre integrated with an exhibition hall. This laboratory also provides the learning space for interactive learning through experimentation with audio visual systems and its effects on common event backdrops.

The Project Laboratory is equipped with facilities and tools to support students in the exploration of their project and design through working with materials and models. The laboratory is well maintained according to the relevant environmental health and safety requirements and standards.
School of Business provides a rigorous and holistic curriculum, thus ensuring that SP students learn practical skills to meet the challenges of work life. Graduates of the school will be well-rounded individuals who are coherent, dependable and eager: qualities that employers look for. Flexibility and choices of study specialisations are other key aspects of the School of Business curriculum. The committed faculty members of the school include experienced accountants, specialists in banking and finance, marketing specialists, HR professionals, management and business analytics experts, and entrepreneurs.

The complete list of full-time courses and options is as follows:

- DIPLOMA IN ACCOUNTANCY (DAC)
- DIPLOMA IN BUSINESS ADMINISTRATION (DBA) WITH OPTIONS IN:
  - Operations Management
  - Marketing Management
  - Entrepreneurship
- DIPLOMA IN BANKING & FINANCE (DBKF)
- DIPLOMA IN COMMON BUSINESS PROGRAMME (DCBP)
- DIPLOMA IN FINANCIAL INFORMATICS (DFI)
- DIPLOMA IN HUMAN RESOURCE MANAGEMENT WITH PSYCHOLOGY (DHRMP)
- DIPLOMA IN ENGINEERING WITH BUSINESS (DEB)
CURRICULUM EMPHASIS
The curriculum for each course offered by the school emphasises the following:
- Teaching business competencies and lifelong learning skills
- Encouraging a spirit of business innovation through design thinking and a global mindset
- Providing realistic and practical training
- Enhancing employment opportunities through a fine blend of broad and specialised knowledge provided in each course

Choice, relevance and quality are key considerations in the school’s approach to curriculum design.

Students may choose any one of the courses or areas of study as listed based on their interests and aptitude. In addition, students may select elective modules to enhance their understanding of their chosen area of specialisation. All SP students will also be required to take the General Education modules over their three-year course of study. More information about the General Education modules can be found in this Prospectus under the chapter on synopses.

INTERNSHIP PROGRAMMES
Students from Accountancy, Banking & Finance, Business Administration, Financial Informatics and Human Resource Management with Psychology go through a comprehensive 22-week internship programme during their final year of study to gain valuable work experience and market skills in relevant industry sectors of the economy.

SCHOOL OF BUSINESS VITAL PROGRAMME
School of Business VITAL Programme stands for the School’s Value-Added International Training and Learning Programme. The school organises overseas industrial training programmes, overseas internships and overseas immersion programmes to enrich and enhance the learning experiences of students.

OTHER COURSES OFFERED
The school also offers the following part-time courses:
- Diploma in Business Practice (Accounting)
- Diploma in Business Practice (Business Management)
- Diploma in Business Practice (Human Capital)
- Diploma (Conversion) in Marketing Management with Digital Marketing
- Diploma (Conversion) in Supply Chain Management and Innovation
- Specialist Diploma in Digital Marketing and Analytics
- Specialist Diploma in Professional Accounting
- Certificate in Accounting
- Certificate in Applied Psychology
- Certificate in Business

Additionally, the school develops and conducts short courses and executive development programmes for our industry partners to meet specific needs of industry.

ADMISSIONS
Details on entry requirements for all courses are described in this Prospectus under the chapter on admissions.

ASSESSMENT & PROGRESSION OF STUDENTS
Depending on the nature of a module, the final grade for a module is based on:
- Continual assessments and an end-of-semester written examination, or
- 100% in-course assessments.

SCHOLARSHIPS
Outstanding School of Business students will be eligible for the prestigious SP Scholarships. In addition, business students may apply for the SP Outstanding Talent Programme (SPOT) as well as other scholarships through the Department of Student Development.

COURSE STRUCTURE (DAC, DBA, DFI, DHRMP, CHROMP)
All full-time students in School of Business attend a common programme in Year 1. The level of specialised training usually increases as a student progresses from Year 2 to Year 3 of study.

COURSE MODULES

<table>
<thead>
<tr>
<th>FULL-TIME</th>
<th>FIRST YEAR</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA0275</td>
<td>Business Accounting</td>
<td>90</td>
</tr>
<tr>
<td>BA0300</td>
<td>Business and Technology</td>
<td>60</td>
</tr>
<tr>
<td>BA0316</td>
<td>Emotional Intelligence/ Business Negotiation</td>
<td>45</td>
</tr>
<tr>
<td>BA0358</td>
<td>Fundamentals of Marketing</td>
<td>90</td>
</tr>
<tr>
<td>BA0508</td>
<td>Economics</td>
<td>90</td>
</tr>
<tr>
<td>BA0509</td>
<td>Management and Human Resource Practices</td>
<td>90</td>
</tr>
<tr>
<td>LC0760</td>
<td>Critical &amp; Analytical Thinking</td>
<td>30</td>
</tr>
<tr>
<td>LC0761</td>
<td>Narrative Thinking</td>
<td>30</td>
</tr>
<tr>
<td>MS1100</td>
<td>Business Statistics</td>
<td>60</td>
</tr>
<tr>
<td>MS1522</td>
<td>IT and Data Analytics for Business</td>
<td>60</td>
</tr>
<tr>
<td>Elective 1</td>
<td>45/60</td>
<td></td>
</tr>
</tbody>
</table>

SP was the first institution in Singapore to train accountants in the 1950s. Many of our accountancy graduates are partners in accounting firms, Chief Executive Officers and Directors of multinational companies.

As the premier training institution in accountancy, the school has constantly maintained the quality and industry relevance of the Diploma in Accountancy (DAC) course. All DAC students are trained with strong technical skills coupled with critical thinking skills, IT and business analytics skills and strong ethical values, which are essential to excel in this VUCA world.
PRACTICAL TRAINING
Our unique and interactive pedagogies through simulated cases, flipped classroom and team-based learning allow students to not only acquire technical skills but also essential soft-skills such as communication, teamwork, problem solving and life-long learning skills. Students will also be exposed to both accounting and audit analysis software as well as various analytics tools which will give them a head start in data analysis and visualisation and creating dashboards. Students have the flexibility to choose from various electives to further broaden and deepen their knowledge and skills. In the final year of study, all students will undergo a 22-week practice industry work experience through local and overseas internships with our reputable and varied industry partners. Our esteemed industry partners include the “Big Four” international accounting firms such as Deloitte, EY, KPMG and PwC as well as mid-tier accounting firms such as BDO, Foo Kon Tan and Mazars.

CAREER PROSPECTS
DAC graduates have excellent job prospects and many graduates receive several job offers upon graduation. The versatility from the various electives offered and the combination of technical accounting skills with hands-on practical training ensure that our DAC graduates are work-ready and able to value add in their organisations.

ACCELERATED PATHWAY TO CHARTERED ACCOUNTANT QUALIFICATION
DAC works closely with the Institute of Chartered Accountants in England and Wales (ICAEW) to create an accelerated pathway for our graduates to pursue the Chartered Accountant qualification through the SP-ICAEW Professional Chartered Accountancy (PCA) programme.

OPPORTUNITIES FOR PROFESSIONAL STUDIES AND DEGREE COURSES
DAC students will get a head start in acquiring professional qualifications whilst in the polytechnic, such as the ICAEW Certificate in Finance, Accounting and Business (CFAB), the Diploma in Management Accounting with the Chartered Institute of Management Accountants (CIMA) and the Diploma of Chartered Certified Accountants (ACCA) qualifications through the ACCA Accelerated Pathway Programme (AAPP).

Graduates will also receive generous exemptions from the above-mentioned professional bodies should they wish to further their studies with them. Should you choose to start working after your diploma, you may wish to pursue the part-time Specialist Diploma in Professional Accounting or the part-time Specialist Diploma in Management Accounting & Analytics offered by SP to deepen your knowledge and prepare yourself for higher appointments in professional accounting. The Specialist Diploma in Professional Accounting equips students with the relevant technical knowledge to seek external certifications with the professional bodies and work towards becoming a Chartered Accountant, while the Specialist Diploma in Management Accounting & Analytics allows students to pursue their full Chartered Global Management Accountant (CGMA) qualification from CIMA. You may also consider the Advanced Diploma in Accountancy offered under the SkillsFuture Earn and Learn Programme (ELP) to progress to the Singapore CA Programme to attain the Chartered Accountant of Singapore designation.

Our diploma is also well-recognised in both local and overseas universities. Graduates may be granted up to one and a half years exemption from a typical three-year related degree courses by overseas universities.

COURSE MODULES

<table>
<thead>
<tr>
<th>FULL-TIME</th>
<th>FIRST YEAR</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

See common Year 1 core modules (page 74)

<table>
<thead>
<tr>
<th>FULL-TIME</th>
<th>SECOND YEAR</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA1264</td>
<td>Auditing</td>
<td>75</td>
</tr>
<tr>
<td>BA1265</td>
<td>Advanced Auditing</td>
<td>60</td>
</tr>
<tr>
<td>BA1261</td>
<td>Advanced Financial Accounting</td>
<td>60</td>
</tr>
<tr>
<td>BA1207</td>
<td>Business Analytics</td>
<td>60</td>
</tr>
<tr>
<td>BA1262</td>
<td>Cost &amp; Management Accounting</td>
<td>90</td>
</tr>
<tr>
<td>LC0757</td>
<td>Communicating for Professional Effectiveness</td>
<td>30</td>
</tr>
<tr>
<td>LC1812</td>
<td>Design Thinking for Social Innovation</td>
<td>45</td>
</tr>
<tr>
<td>BA1260</td>
<td>Financial Accounting</td>
<td>90</td>
</tr>
<tr>
<td>BA1266</td>
<td>Taxation</td>
<td>90</td>
</tr>
<tr>
<td>Elective</td>
<td>60</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FULL-TIME</th>
<th>THIRD YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA1268</td>
<td>Business &amp; Company Law</td>
</tr>
<tr>
<td>BA1249</td>
<td>Business Strategy &amp; Ethics</td>
</tr>
<tr>
<td>BA1270</td>
<td>Client Project*</td>
</tr>
<tr>
<td>BA1287</td>
<td>Financial Management</td>
</tr>
<tr>
<td>BA1253</td>
<td>Integrated Accounting Practices</td>
</tr>
<tr>
<td>ICM099</td>
<td>Internship Programme</td>
</tr>
<tr>
<td>Choice of one out of two modules</td>
<td></td>
</tr>
</tbody>
</table>

Designated for future financial professionals who want to make an impact in the complex global economy, the Diploma in Banking and Finance—known as DBKF—is gives you a head start in being a responsible and insightful wealth creator. Beyond the technical competencies, latest innovations such as Financial Technology (FinTech) and Data Analytics skills are blended into the programme, to equip you for the future economy. You will be encouraged to adopt a critical and flexible viewpoint and to analyse issues from a variety of perspectives.

*Choice of one out of two modules

References
The SP elective framework offers students options to pursue their passion and/or suit different career needs, and as an integral part of the holistic education we seek to provide to our students. The learning experiences of the elective framework help students in their development as self-directed, versatile life-long learners, which are essential in today’s volatile and changing societal as well as occupational landscape.

For a list of electives offered, please visit www.sp.edu.sg.
ACADEMIC INNOVATION
The programme will develop you to be future finance professionals with the mastery of both theory and skills that are needed to navigate the evolving world of finance. “Hands-on learning” is fundamental to the DBKF experience. There will be opportunities for you to acquire real-life experience through a variety of local and overseas programmes. You will go on a 22-week internship in your final year. Depending on your career preference, you may choose an internship with financial institutions, such as MAS (Monetary Authority of Singapore), HSBC, OCBC, DBS and other leading organisations, or with FinTech companies to experience their entrepreneurial journey in Finance and Technology. Beyond the classroom, you would have the opportunity to work on industry / data analytic projects, excel in competitions, network at seminars and job shadow in financial institutions. You would also be able to go on learning journeys and volunteer for overseas social innovation projects that allow you to have an impact on the wider world.

FLEXIBILITY AND MULTIPLE PATHWAYS
You are able to chart your own pathway through a variety of electives offered at various stages of the programme. Electives include Forex Trading, Commodities Trading, Predictive Analytics, and many more.

CAREER PROSPECTS
As Singapore continues to thrive as an international financial hub, there are good employment opportunities. More than 93% of our graduates surveyed found jobs in 3 months after graduation last year, according to the Graduate Employment Survey 2017. Graduates are skilled for roles in a wide variety of functions, including credit and marketing, trade finance, retail and branch banking, treasury, private banking and financial planning, research, risk and compliance, administrative support in banks, stockbrokerages and fund management companies.

FURTHER STUDIES
Graduates from this course have the flexibility to further their studies in reputable local and foreign universities. This course offers you advanced standing or Entrepreneurship in line with your personality, interests and career aspirations, or Entrepreneurship in line with your

A Diploma in Business Administration (DBA) covers a broad spectrum of business disciplines encompassing critical skills such as design thinking and business analytics. Its curriculum provides you with the flexibility to further customise your career options. After Year 1, DBA allows you the freedom to personalise your study path by choosing one out of three options. You may concentrate on Marketing, Operations or Entrepreneurship in line with your personality, interests and career aspirations in Year 2. This allows you to become a successful ‘T-Shaped’ graduate with depth of expertise in your respective specialities and breadth of business knowledge across essential business disciplines.

If you want to be a successful business achiever in today’s competitive environment, the Diploma in Business Administration (DBA) is the right course for you! DBA develops versatile leaders, entrepreneurs and industry captains who create value for their organisations and communities. DBA covers a broad spectrum of business disciplines encompassing critical skills such as design thinking and business analytics. Its curriculum provides you with the flexibility to further customise your career options. After Year 1, DBA allows you the freedom to personalise your study path by choosing one out of three options. You may concentrate on Marketing, Operations or Entrepreneurship in line with your personality, interests and career aspirations. After Year 1, DBA allows you the freedom to personalise your study path by choosing one out of three options. You may concentrate on Marketing, Operations or Entrepreneurship in line with your personality, interests and career aspirations.

If you want to be a successful business achiever in today’s competitive environment, the Diploma in Business Administration (DBA) is the right course for you! DBA develops versatile leaders, entrepreneurs and industry captains who create value for their organisations and communities. DBA covers a broad spectrum of business disciplines encompassing critical skills such as design thinking and business analytics. Its curriculum provides you with the flexibility to further customise your career options. After Year 1, DBA allows you the freedom to personalise your study path by choosing one out of three options. You may concentrate on Marketing, Operations or Entrepreneurship in line with your personality, interests and career aspirations. After Year 1, DBA allows you the freedom to personalise your study path by choosing one out of three options. You may concentrate on Marketing, Operations or Entrepreneurship in line with your personality, interests and career aspirations. After Year 1, DBA allows you the freedom to personalise your study path by choosing one out of three options. You may concentrate on Marketing, Operations or Entrepreneurship in line with your personality, interests and career aspirations.
Electives

Marketing is an indispensable function within any organisation. Not only does it help an organisation to position its products and services in the desired image to attract and retain customers, it also builds and creates an organisation’s most important asset – brand equity! The marketing field thus provides a wide range of exciting career opportunities.

MM students will gain specialisation in Marketing from Year 2 onward, where they learn how to conduct marketing research, understand the needs and wants of their target consumers. They will reach out to their prospective customers by undertaking their decision-making process with insights using Consumer Psychology.

MM students will also gain hands-on exposure to integrated marketing communications, brand management and digital marketing equipping them with useful skills and knowledge to excel in tomorrow’s competitive business landscape. Apart from an internship programme where students get the opportunity to work with reputable industry partners in omni-channel marketing, they will also be involved in marketing focused client-based capstone projects. The marketing specialisation through DBA is deliberately designed to differentiate our graduates, promoting their employability as a marketing professional.

MM graduates are well positioned to start work as an executive in marketing departments or functions. They can also find exciting and gainful careers in digital marketing, social media marketing, event management, advertising and public relations.

OPERATIONS MANAGEMENT (OM)

Operations is the heart of any organisation. Be it a private company, non-profit, manufacturing, service-oriented or government organisation. A company with good operations can have a significant impact on its competitiveness and profitability. Operations also improves product and service quality. This option is designed to provide students with specific training and education in operations management which focus on smooth flow of products and services between businesses and their key stakeholders. Students will embrace the essential skills necessary for designing, managing and improving operations and processes in major types of business. The option emphasises both hands-on and analytical decision-making skills.

The module will develop students’ understanding on key processes in business that create value. Students will be taught current concepts in procurement and logistics operations, supply chain, international trade operations, quality and lean management. In Year 3, CM students will apply their knowledge and skills on client-based capstone projects. They will also embark on their internship. Students will be exposed to a suite of industry-relevant software applications and technology. They will also participate in field trips, which add realism and provide industry exposure.

Qualified professionals for operations-related positions continue to be in high demand globally. Students with this specialisation can join local companies or multi-national companies as executives in diverse areas such as operation management, project management, supply chain management, procurement, and quality management.

ENTREPRENEURSHIP (ENT)

The Entrepreneurship option adopts a special breed of potential talents, those who are focused, resilient and daring. Entrepreneurs drive the economy, creating social and economic value by focusing on idea generation, opportunity recognition, and entrepreneurial management.

ENT students will be immersed in the entrepreneurial ecosystem early to learn to shape entrepreneurial opportunities, assess financial feasibility of ventures, while living an entrepreneurial experience.

Starting with foundation modules in Year 1, such as basic marketing and accounting, ENT students are immersed in the enterprise environment very quickly, developing their entrepreneurial mind-set in Year 2 with modules in business opportunities and the innovation process. For this, they are trained in design thinking and are taught to leverage on business analytics.

The ENT option adopts a student-focused approach to teaching and learning, supporting them with opportunities and experiences in platforms such as pitching sessions, industry mentoring, makers fairs, hackathons/ hackfests and competitions. Students learn how to access market feasibility for their ideas, and learn business fundamentals such as branding and finance. The course inculcates strong and sharp business acumen, risk-taking capabilities, effective marketing and resource management skills, in ensuring business viability.

The ENT option seeks to inculcate creativity skills, a daring outlook, “can-do” attitude, risk-taking and “out-of-the-box” thinking skills. Its curriculum features the Entrepreneurship Practicum in Year 3. This option provides the hands-on experiential learning and training towards business start-ups and their registration through ACRA. Student entrepreneurs also benefit from financing, seed-funding and access to mentorship from industry and angel investors.

Skills and competencies gained in the ENT option are valuable to diverse organisations including nascent start-ups, family businesses and non-profit organisations. Graduates from this option can confidently run their own businesses, while others are sought-after in organisations that value talents with competencies which can turn ideas or projects into successful endeavours.

OPPORTUNITIES FOR OVERSEAS PROGRAMMES

In Year 3, students can gain invaluable global perspective with the option of going for an overseas internship in China or enrolling in a Project Expedition elective which will bring them to an ASEAN country to work on a real client-project. This programme will help students to acquire cultural understanding, country and competitive intelligence.

OPPORTUNITIES FOR ENHANCED INTERNSHIP

In Year 3, students will embark on a compulsory 22-week internship. Students will be attached to companies which are passionate about developing and training young talents with their in-house training or junior management trainee programmes.

CAREER PROSPECTS

The versatility of the DBA course prepares students for a business career in various sectors and industries. As such, plenty of employment and career opportunities await those who wish to progress in the world of entrepreneurship, business management and public service.

FURTHER STUDIES

Our DBA course is well-recognised by all local universities and many overseas universities. DBA graduates will be able to pursue further studies and enjoy advanced professional standing status that usually allows them to enrol in the second year of some degree programmes.

The ENT option offers students options to pursue their passion and/or meet different career needs, and is an integral part of the holistic education we seek to provide to our students. The learning experiences of this elective framework help students in their development as self-directed, versatile, life-long learners, who are essential in today’s volatile and changing societal as well as occupational landscapes.

For a list of elective offered, please visit www.sp.edu.sg
COURSE OVERVIEW
The CBP allows students to go through the same Year 1 curriculum as other School of Business (SB) students before they make their decision.

Towards the end of Year 1 Semester Two, CBP students will rank their preferences among the four diplomas as follows:
- Diploma in Accountancy (DAC)
- Diploma in Banking & Finance (DBKF)
- Diploma in Business Administration (DBA)
- Diploma in Human Resource Management with Psychology (DHRMP)

CBP students will then continue with their Year 2 and 3 studies in one of these diplomas.

CAREER PROSPECTS
Your career choices will depend on the diplomas that you are placed into. Do refer to the relevant diplomas to see your choices.

FURTHER STUDIES
Depending on your specialisation, you can continue to pursue a business degree programme at a local or foreign university.

COURSE MODULES

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Full-time First Year Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diploma in Common Business Programme (CBP)</td>
<td></td>
</tr>
</tbody>
</table>

See common Year 1 core modules (page 74).

Electives
The SP elective framework offers students options to pursue their passion and/or meet different career needs, and is an integral part of the holistic education we seek to provide to our students. The learning experiences of the elective framework help students in their development as self-directed, versatile, life-long learners, which are essential in today’s volatile and changing societal as well as occupational landscape.

For a list of electives offered, please visit www.sp.edu.sg
Diploma in Financial Informatics (DFI)

DFI develops you to be tomorrow’s professional in enterprise risk management and business analytics.

The course is anchored in three pillars: enterprise risk management, analytics & technology. It gives an integrated overview of how finance theory and computing techniques are applied to the finance sector and risk management functions. Graduates will be equipped with knowledge and skills in financial products and accounting, investment operations, risk management and modelling, business and predictive analytics, and information technology.

DFI is the first polytechnic course that prepares students for exciting analytics, and information technology.

DFI delivers its programme with an active learning approach. Theories and concepts are reinforced with projects, field trips and hands-on practicum using industry relevant tools. Our dedicated learning facility, Financial Informatics Lifelong Learning Space (FILLS) – will provide facilities to link finance theories/concepts and practical applications.

CAREER PROSPECTS

Promising career opportunities await the students as Singapore continues its positioning as an international financial centre and data analytics hub, thus driving the demand for professionals with relevant skills. They will have versatile career options in the areas of risk assessment and reporting, financial management, product control and compliance, accounting and banking, analytics and business intelligence, investment technology and operations, and project management.

VALUE-ADDED PROGRAMMES

In DFI, many value-added programmes await students. They will have the opportunity to obtain accreditation from the Institute of Chartered Accountant in England and Wales (ICAEW) certification.

Students will also be given opportunities to take on overseas immersion and work programmes to enrich learning experience.

ENRICHING LEARNING ENVIRONMENT

The hallmark of DFI has to be its bonded community that builds great sense of pride and camaraderie among the DFI students. The network comprises lecturers, peers, juniors and alumni. Students can be connected fruitfully with others through various out-of-classroom activities such as bonding camps, Fintech bootcamp, Toastmasters programme, sport fixeta, community projects and networking events, which form an integrated part of the DFI programme.

INITIATIVES TO ENRICH LEARNING EXPERIENCE

The DFI programme is also well-recognised by many professional bodies and you can pursue professional certifications in Institute of Banking and Finance (IBF) certification, Association of Chartered Certified Accountants (ACCA) and Institute of Chartered Accountants in England and Wales (ICAEW) certification.

ENRICHING LEARNING ENVIRONMENT

The hallmark of DFI has to be its bonded community that builds great sense of pride and camaraderie among the DFI students. The network comprises lecturers, peers, juniors and alumni. Students can be connected fruitfully with others through various out-of-classroom activities such as bonding camps, Fintech bootcamp, Toastmasters programme, sport fixeta, community projects and networking events, which form an integrated part of the DFI programme.

VALUE-ADDED PROGRAMMES

In DFI, many value-added programmes await students. They will have the opportunity to obtain accreditation from the Institute of Chartered Accountant in England and Wales (ICAEW) certification.

Students will also be given opportunities to take on overseas immersion and work programmes to enrich learning experience.

ENRICHING LEARNING ENVIRONMENT

The hallmark of DFI has to be its bonded community that builds great sense of pride and camaraderie among the DFI students. The network comprises lecturers, peers, juniors and alumni. Students can be connected fruitfully with others through various out-of-classroom activities such as bonding camps, Fintech bootcamp, Toastmasters programme, sport fixeta, community projects and networking events, which form an integrated part of the DFI programme.

VALUE-ADDED PROGRAMMES

In DFI, many value-added programmes await students. They will have the opportunity to obtain accreditation from the Institute of Chartered Accountant in England and Wales (ICAEW) certification.

Students will also be given opportunities to take on overseas immersion and work programmes to enrich learning experience.

ENRICHING LEARNING ENVIRONMENT

The hallmark of DFI has to be its bonded community that builds great sense of pride and camaraderie among the DFI students. The network comprises lecturers, peers, juniors and alumni. Students can be connected fruitfully with others through various out-of-classroom activities such as bonding camps, Fintech bootcamp, Toastmasters programme, sport fixeta, community projects and networking events, which form an integrated part of the DFI programme.

VALUE-ADDED PROGRAMMES

In DFI, many value-added programmes await students. They will have the opportunity to obtain accreditation from the Institute of Chartered Accountant in England and Wales (ICAEW) certification.

Students will also be given opportunities to take on overseas immersion and work programmes to enrich learning experience.

ENRICHING LEARNING ENVIRONMENT

The hallmark of DFI has to be its bonded community that builds great sense of pride and camaraderie among the DFI students. The network comprises lecturers, peers, juniors and alumni. Students can be connected fruitfully with others through various out-of-classroom activities such as bonding camps, Fintech bootcamp, Toastmasters programme, sport fixeta, community projects and networking events, which form an integrated part of the DFI programme.

VALUE-ADDED PROGRAMMES

In DFI, many value-added programmes await students. They will have the opportunity to obtain accreditation from the Institute of Chartered Accountant in England and Wales (ICAEW) certification.

Students will also be given opportunities to take on overseas immersion and work programmes to enrich learning experience.

ENRICHING LEARNING ENVIRONMENT

The hallmark of DFI has to be its bonded community that builds great sense of pride and camaraderie among the DFI students. The network comprises lecturers, peers, juniors and alumni. Students can be connected fruitfully with others through various out-of-classroom activities such as bonding camps, Fintech bootcamp, Toastmasters programme, sport fixeta, community projects and networking events, which form an integrated part of the DFI programme.

VALUE-ADDED PROGRAMMES

In DFI, many value-added programmes await students. They will have the opportunity to obtain accreditation from the Institute of Chartered Accountant in England and Wales (ICAEW) certification.

Students will also be given opportunities to take on overseas immersion and work programmes to enrich learning experience.

ENRICHING LEARNING ENVIRONMENT

The hallmark of DFI has to be its bonded community that builds great sense of pride and camaraderie among the DFI students. The network comprises lecturers, peers, juniors and alumni. Students can be connected fruitfully with others through various out-of-classroom activities such as bonding camps, Fintech bootcamp, Toastmasters programme, sport fixeta, community projects and networking events, which form an integrated part of the DFI programme.

VALUE-ADDED PROGRAMMES

In DFI, many value-added programmes await students. They will have the opportunity to obtain accreditation from the Institute of Chartered Accountant in England and Wales (ICAEW) certification.

Students will also be given opportunities to take on overseas immersion and work programmes to enrich learning experience.

ENRICHING LEARNING ENVIRONMENT

The hallmark of DFI has to be its bonded community that builds great sense of pride and camaraderie among the DFI students. The network comprises lecturers, peers, juniors and alumni. Students can be connected fruitfully with others through various out-of-classroom activities such as bonding camps, Fintech bootcamp, Toastmasters programme, sport fixeta, community projects and networking events, which form an integrated part of the DFI programme.

VALUE-ADDED PROGRAMMES

In DFI, many value-added programmes await students. They will have the opportunity to obtain accreditation from the Institute of Chartered Accountant in England and Wales (ICAEW) certification.

Students will also be given opportunities to take on overseas immersion and work programmes to enrich learning experience.

ENRICHING LEARNING ENVIRONMENT

The hallmark of DFI has to be its bonded community that builds great sense of pride and camaraderie among the DFI students. The network comprises lecturers, peers, juniors and alumni. Students can be connected fruitfully with others through various out-of-classroom activities such as bonding camps, Fintech bootcamp, Toastmasters programme, sport fixeta, community projects and networking events, which form an integrated part of the DFI programme.
School of Business

Management with Diploma in business environment. You will benefit from a curriculum integrated with real-world experience, preparing you to be a successful HR professional in the global management, workplace psychology and emotional intelligence.

This comprehensive course is aligned with the national HR Skills Framework and will equip you with practical skills in human resource management.

We Nurture PEOPLE Who Develop People.

SP is the first and leading polytechnic to offer a full-time Diploma in Human Resource Management with Psychology (DHRMP) since 2008. This comprehensive course is aligned with the national HR Skills Framework and will equip you with practical skills in human resource management, workplace psychology and emotional intelligence.

You will benefit from a curriculum integrated with real-world experience, preparing you to be a successful HR professional in the global business environment.

EXCITING LEARNING JOURNEY

Our innovative and unique Human Resource Learning Studio provides you with a conducive environment to acquire HR-related skills in communication, presentation, interviewing, counselling and negotiation. Students also receive hands-on training throughout this highly engaging course, culminating in their final-year client-based project. With this comprehensive programme, SP’s DHRMP students consistently win top awards in national HR competitions. This journey is further enhanced through school-wide leadership programmes and overseas immersion experiences.

STRONG INDUSTRY SUPPORT

Singapore Polytechnic has been appointed as “Sector Lead” for HR among the polytechnics and the Institute of Technical Education (ITE). With strong relationships with the HR community, collaborations such as industry talks and field trips provide students with first-hand experience of how HR teams function.

You will also gain corporate experience through the 22-week internship with varied industry partners, and participate in HR events such as the Asia Pacific Federation of Human Resource Conference, HR Summit & Expo, Singapore HR Congress and Singapore HR Awards.

DHRMP SCHOLARSHIPS

Prestigious DHRMP scholarships from leading organisations are also offered to students with academic excellence, CCA achievements and exemplary conduct.

You will also gain corporate experience through the 22-week internship with varied industry partners, and participate in HR events such as the Asia Pacific Federation of Human Resource Conference, HR Summit & Expo, Singapore HR Congress and Singapore HR Awards.

FURTHER STUDIES

SP’s diploma is well-recognised by all local universities and overseas universities. As SP’s DHRMP graduate, you will receive generous advanced credit standing from reputable universities should you decide to further your studies. Our DHRMP graduates have gained admission into prestigious courses including Business (HRM), Economics, Law, Psychology, Sociology and Social Work.

CAREER PROSPECTS


If you choose to start your HR career after graduation, you could further deepen your learning through on-the-job work experiences, SkillsFuture Earn and Learn Programme for HR or SP’s Specialist Diploma in Enhanced HR Skills. The Specialist Diploma is designed to support the national directive of maximizing people’s potential, enhancing human capital development and raising the overall standards of the HR profession in Singapore. It will deepen your knowledge and skills on some of the leading HR Technologies and tools to improve HR efficiency and effectiveness across the various HR functions.

SP’s holistic approach to nurturing HR professionals ensures that our DHRMP students are work-ready, life ready and world-ready. Join us now!

FURTHER STUDIES

SP’s diploma is well-recognised by all local universities and overseas universities. As SP’s DHRMP graduate, you will receive generous advanced credit standing from reputable universities should you decide to further your studies. Our DHRMP graduates have gained admission into prestigious courses including Business (HRM), Economics, Law, Psychology, Sociology and Social Work.

“SP’s DHRMP curriculum offers a good balance of HR, psychology and business knowledge which equip students with enterprise mind-set and readiness to embark on their career. The course helps students to deal with disruptive technologies which are affecting organization structure and workplace team dynamics. Besides equipping students with the essential knowledge in human resource management, SP’s DHRMP course trains students with future ready skills such as emotional intelligence and positive psychology. The HR learning studio, overseas immersion and internship programmes are just some of the dynamic pedagogies that develop students with market ready HR competencies and people engagement skills.”

Associate Professor

Nigel Phang Yue Kwong

Nanyang Business School Nanyang Technological University

Electives

The SP elective framework offers students options to pursue their passion and/or meet different career needs, and is an integral part of the holistic education we seek to provide to our students. The learning experiences of this elective framework help students in their development as self-directed, versatile, lifelong learners, who are essential in today’s volatile and changing societal as well as occupational landscapes.

For a list of electives offered, please visit www.sp.edu.sg

COURSE MODULES

<table>
<thead>
<tr>
<th>FULL-TIME</th>
<th>FIRST YEAR</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BA0400 Business Law</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>BA0251 Employee Engagement and Relations</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>BA0814 Psychology in Counselling</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>BA0819 Learning and Talent Development</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>BA0820 Total Rewards Management</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>BA0821 Talent Sourcing and Acquisition</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>LCR062 Design Thinking for Social Innovation</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Semester 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BA0400 Business Law</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>BA0806 HR Information System</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>BA0815 Employment Law</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>BA0817 Negotiation and Conflict Management</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Elective 2</td>
<td>60</td>
</tr>
<tr>
<td>Semester 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BA0817 Negotiation and Conflict Management</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>BA0818 HR Analytics</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>BA0828 Global HR Management</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>BA0819 Psychology in Work Behaviour</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>BA0833 Integrated HR Project</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Elective 3</td>
<td>90/60</td>
</tr>
<tr>
<td>BA0836 Workforce Planning and Employment Law</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>BA0838 Professionalgrenade</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>BA0840 Organisational Development</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>BA0841 Employee Relations and Legal Issues</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>BA0844 HR Analytics</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>BA0845 Global HR Management</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>BA0846 Psychology in Work Behaviour</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>BA0847 Integrated HR Project</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Elective 3</td>
<td>90/60</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

We nurture people who develop people.
The Diploma in Engineering with Business (DEB) is an innovative multi-disciplinary course that provides students with cross-training in both engineering and business. The course leverages on the experience and expertise of three schools, namely, School of Electrical & Electronic Engineering, School of Mechanical & Aeronautical Engineering and School of Business, to provide students with an exciting range of learning opportunities.

This diploma is specially designed for students who have a keen interest in mathematics, science and technology, but who may not wish to pursue a pure engineering course, thus offering greater flexibility to students who have a keen interest in mathematics, science and technology, but who may not wish to pursue a pure engineering course, thus offering greater flexibility to students who have a keen interest in business. The course leverages on the experience and expertise of three schools, namely, School of Electrical & Electronic Engineering, School of Mechanical & Aeronautical Engineering and School of Business, to provide students with an exciting range of learning opportunities.

This course offers:

- A curriculum with modules from three SP schools - School of Electrical & Electronic Engineering, School of Mechanical and Aeronautical Engineering and School of Business.
- Integration of engineering and business knowledge with a strong focus on entrepreneurship.
- An exciting 2-week overseas exchange programme (Learning Express) where you will use your skills and knowledge to improve lives in the real world.
- 22-week internship opportunities at reputable local or overseas companies such as OCBC, Mapletree, ST Electronics, Panasonic, SSGC and A*STAR.
- Opportunities to join the premier Engineering Academy Programme and take part in local and overseas competitions.
- A curriculum that follows the CDIO (Conceive-Design-Implement-Operate) framework which is adopted in top universities such as MIT.
- A proven track record of DEB graduates admitted to local and overseas universities such as NUS, NTU, SUTD, SMU, SIT and University College London (UCL) with up to 2 years of advanced standing.
- Ample prestigious scholarships from SP are available for application by outstanding DEB students.
- Internships opportunities to work closely with Technopreneurs, prototype quickly and have opportunities to work closely with industry and university partners.
- CAREER PROSPECTS
Graduates of this diploma will be versatile and be able to pursue rewarding careers in both engineering and business organisations. Given the cross-disciplinary training and with adequate working experience, graduates can aspire to become entrepreneurs.

FURTHER STUDIES
Graduates of this course have the flexibility to further their studies in business, various engineering (with business minor) or similar inter-disciplinary programmes in both local and overseas universities. Graduates are eligible for admission to the second year of the Electrical & Electronic Engineering (with business minor) course at the Nanyang Technological University (NTU) or gain about one year's worth of exemptions at the National University of Singapore (NUS). Graduates of this course have also been admitted to the Singapore University of Technology and Design (SUTD), Singapore Management University (SMU), Singapore Institute of Technology (SIT), University College London and University of Melbourne.

COURSE MODULES

<table>
<thead>
<tr>
<th>DEGREE CODE</th>
<th>COURSE</th>
<th>CITY</th>
<th>產生</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA0217</td>
<td>Fundamentals of Economics</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BA0312</td>
<td>Principles of Marketing</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ET0083</td>
<td>Structured Programming</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ET0085</td>
<td>Computer Aided Design &amp; Drafting (CAD)</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ET0103</td>
<td>Digital Electronics I</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ET0105</td>
<td>Principles of Electrical &amp; Electronic Engineering I</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ET0115</td>
<td>Engineering Design &amp; Business Project I</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ET0101</td>
<td>Introduction to Engineering I</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC0350</td>
<td>Critical &amp; Analytical Thinking</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC0361</td>
<td>Narrative Thinking</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME0101</td>
<td>Mechanics I</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME0401</td>
<td>Thermofluids I</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS4201</td>
<td>Basic Mathematics</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS4202</td>
<td>Engineering Mathematics II</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DEGREE CODE</th>
<th>COURSE</th>
<th>CITY</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA0232</td>
<td>Business Planning for New Ventures</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BA4024</td>
<td>Professional Selling</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ET0255</td>
<td>Mobile Application Development</td>
<td>75</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ET0266</td>
<td>Principles of Electrical &amp; Electronic Engineering II</td>
<td>90</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ET0260</td>
<td>Microcontroller Applications</td>
<td>90</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ET0267</td>
<td>Engineering Projects for Entrepreneurs</td>
<td>75</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC0355</td>
<td>Communicating for Project Effectiveness (Report)</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC0362</td>
<td>Design Thinking for Social Innovation</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME0406</td>
<td>Mechanical Engineering Systems</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS2000</td>
<td>Statistics &amp; Analytics</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS2031</td>
<td>Engineering Mathematics II</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DEGREE CODE</th>
<th>COURSE</th>
<th>CITY</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA0354</td>
<td>Entrepreneurship &amp; Small Business</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ET0253</td>
<td>Circuit Theory &amp; Analysis</td>
<td>75</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC0357</td>
<td>Communicating for Professional Effectiveness</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME2001</td>
<td>Industrial Engineering</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ET1115</td>
<td>Energy Management &amp; Auditing</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC4001</td>
<td>Internship Programme</td>
<td>22</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For a list of electives offered, please visit www.sp.edu.sg
The School of Business is one of the largest business schools in Singapore with more than 100 full-time academic staff. We offer more than just a great curriculum. From surveys and feedback, our graduates endorse the School of Business’ quality teaching. Our lecturers are well qualified with practical experience in relevant industries. At School of Business, your education will go far beyond books.

The learning process is dynamic and reflective of the ‘real world’ through the use of the following ‘state-of-the-art’ facilities:

**ACCOUNTING COLLABORATION STUDIO**

The Accounting Collaboration Studio is a special and vibrant learning space dedicated to help students acquire those skills sets in a well-designed studio. You can open up your mind to new experiences and new possibilities. The dedicated recording facility in the studio allows one to record and assess his performance in simulated client engagements. The studio configuration is designed to support team-based learning in solving integrated accounting and business problems.

**BUSINESS INNOVATION & DESIGN STUDIO**

The first of its kind in Singapore, the Business Innovation & Design Studio is specially built to facilitate use of a designer’s approach or design thinking to solve business problems and to seize new business opportunities. The dedicated learning facility supports the ‘Business Innovation’ module which is related to studio pedagogy and facilitates the effective assimilation of design thinking and business design skills.

**UOB KAY HIAN – SP DEALING CENTRE**

Our UOB Kay Hian – SP Dealing Centre manifests our brand – SB offers our students an education that goes far beyond the traditional physical set-ups. The UOB Kay Hian – SP Dealing Centre is equipped with Thomson Reuters’ financial information system which provides financial market rates, news and news headlines, financial reports and price charts. It is also supported by a dealing communication system of dealing phones and voice boxes. The UOB Kay Hian – SP Dealing Centre replicates a real-world trading environment and connects the classroom with the financial world. SB is the only polytechnic in Singapore with such a unique learning system.

The facility aims to train final-year Banking & Finance students in price making, as well as applying trading principles and trading position management. Students will experience the full dealing room environment in trading foreign exchange (currencies) as well as financial derivatives (futures and options). Students get a taste of life as a trader with the realistic, competition and tension as the financial markets move.

**ENTERPRISE HUB**

Formerly known as the Entrepreneurship Resource & Ideas Centre (ERIC), SP Business School’s Enterprise Hub was established in 2005 to meet the needs of a special cohort of students taking the course in entrepreneurship.

Business of School of Business Enterprise Hub is an on-campus entrepreneurship teaching facility that offers students an office meeting room, discussion and work spaces, inventory processing and storage areas. In addition to holding group discussions and presentations, students can use the Enterprise Hub for meetings with their clients, customers and suppliers.

Enterprise Hub is part of an enterprise training ecosystem – including both on-campus and off-campus facilities – that authentically simulates real world business environments and operations. Our school uses a multi-pronged approach to cultivate a strong enterprising culture among students. This approach involves providing specialists hands-on experiential training programmes, offers and assists students in applying for seed funding, and collaborates with industry to create unique opportunities for student entrepreneurs that will give them a head start for their new ventures.

**HOSPITALITY STUDIO**

The Hospitality Studio is a learning space which provides practical training to students in Hotel Front Office reservations and Food & Beverage management. For Hotel Front Office work, a mock Hotel Front Desk installed at the Hospitality Studio, allows students the opportunity to learn how to use the sophisticated ‘Opera’ computer reservations software. This software is widely used by most major hotels around the world. Students will engage in role plays as Hotel Front Office staff and guests. The Hospitality Studio also has a designated dining area where students are taught fine dining etiquette, table lay-out, proper serving tips and correct use of cutlery. Thus, students will have the practical knowledge and the mind-set of service excellence in the hospitality industry.

**SP INNOMALL**

First established in June 2017, SP Innomall is the first project of the SP Business Innovation Centre (BIC). A one-of-a-kind opportunity for marketers and brands to market products and services to the young. SP Innomall was conceived as a living laboratory allowing proof-of-concept activities, including both long-term and fast experimentation projects, by industry that can benefit students by way of authentic, experiential learning. SP Innomall is developed and managed by students under guidance from staff, while also being a self-funding, self-sustaining facility. Almost all of it is industry-funded.

Singapore’s largest cluster of vending machines, SP Innomall allows companies to test new product or marketing and other business ideas using vending in a cluster with a potential user base of thousands of students and staff. Students apply everything they learn in SP – from market research and visual merchandising, to accounting, graphic design and event management – in SP Innomall. They also hone their skills, improve and update their knowledge by liaising with industry partners daily.

With SP Innomall, students develop a keen entrepreneurial spirit. They learn to be adaptable, resourceful, have strong initiative and are highly motivated. They also learn to be collaborative, dependable and socially responsible. By encouraging industry to embrace productivity, innovation and technology, SP Innomall offers students tremendous opportunity for the applied learning of skills and knowledge.

**FINANCIAL INFORMATICS LIFECYCLE LEARNING SPACE (FILLS)**

FILLS caters to a variety of learning styles and activities. Students use FILLS as a learning space to discuss and collaborate on areas such as business intelligence, risk management and data analytics. The facility provides a venue for student brainstorm and work on projects, simulating the operations of start-ups. In the process, they will learn how to work as a team, engage stakeholders, create prototypes and bring ideas to market quickly.
Chemical & Life Sciences

Applied Chemistry
Biomedical Science
Biotechnology
Chemical Engineering
Food Science & Technology
Nutrition, Health & Wellness
Optometry
Perfumery & Cosmetic Science

The chemical and life sciences industry is one of the largest and fastest growing segments in the Singapore economy. There is a significant demand for skilled workers in the various areas of industry, academia and research.

The School of Chemical & Life Sciences (CLS) is highly committed to train competent graduates for a wide range of career options and educational possibilities through its Diplomas, Advanced Diplomas, Specialist Diplomas, Certificates, short and tailor made courses. Up-to-date curricula and modern teaching facilities are integral to the CLS experience.

DIPLOMA COURSES
- Diploma in Applied Chemistry
  - Industrial Chemistry option
  - Materials Science option
  - Pharmaceutical Science option
- Diploma in Biomedical Science
  - Biomedical Research option
  - Cardiac Technology option
  - Medical Technology option
- Diploma in Biotechnology
- Diploma in Chemical Engineering
- Diploma in Food Science & Technology
- Diploma in Nutrition, Health & Wellness
- Diploma in Optometry
- Diploma in Perfumery & Cosmetic Science

ADVANCED DIPLOMA COURSES
- Advanced Diploma in Applied Food Science (Earn-and-Learn Programme)
- Advanced Diploma in Chemical Engineering (Earn-and-Learn Programme)

SPECIALIST DIPLOMA COURSES
- Specialist Diploma in Cosmetic Science
- Specialist Diploma in Formulation Science & Technology
- Advanced Diploma in Specialty Chemicals
- Specialist Diploma in Microbiology
- Specialist Diploma in Nutrition & Exercise Science

OTHER COURSES OFFERED
- Diploma in Applied Science (Chemical Laboratory Technology) (Earn-and-Learn Programme)
- Diploma in Applied Science (Industrial Chemistry & Life Sciences)

PRACTICAL TRAINING
The school has excellent laboratories and workshops equipped with state-of-the-art equipment and experimental set-ups to provide students with valuable hands-on experience. This is supplemented by industrial training, internship programmes or clinical attachment of various durations for different diploma courses. Our students can also gain international exposure through overseas internships.
Diploma in Applied Chemistry (DAPC)

With strong support from the Economic Development Board (EDB) and good infrastructure, Singapore has, over the years, developed into a world-class chemical hub. Highly diversified, the chemical industry in Singapore comprises the oil refining, petrochemicals, specialty chemicals and water technology sectors. There are currently more than 100 leading petroleum, petrochemical and specialty chemicals companies residing on Jurong Island alone.

Additionally, several local as well as global chemical companies are located within Singapore’s industrial parks.

The biomedical industry, currently serving as the largest contributor to value-added manufacturing, is another key industry. It is therefore not surprising that it has been earmarked by the EDB as another key focus area. Thus far, over 30 global pharmaceutical and biotechnology companies have set up their international and regional headquarters in Singapore.

Singapore is also a global hub for materials creation and innovation. According to the EDB, the materials and chemical industry is poised for further growth as more world-scale chemical plants and R&D facilities come on stream. Developments across many sectors drive the demand for advanced and specialty materials. These include applications in the fields of polymers, nanomaterials, composites, elastomers, adhesives and coatings and clean energy technologies such as membrane technology and photovoltaic cells.

Asia’s rapid urbanisation, changing demographics and the rise of the Asian middle-class have resulted in burgeoning demand for chemicals, pharmaceuticals, and materials, which have made these industries key drivers of the Singapore economy.

Many specialty chemicals, specialty materials and pharmaceutical companies are strengthening their presence in the region, leveraging on Singapore’s leading position in logistics, intellectual property protection, access to global talent and R&D capabilities.

Clearly, the chemical, biomedical, and materials industries are high-growth sectors. To sustain their growth, these thriving industries require people who are specially trained in the chemical sciences.

A HEAD START

Offered only at SP, the Diploma in Applied Chemistry (DAPC) is a three-year, full-time programme tailored to meet the needs of the chemical, biomedical and materials industries. The course, which has a 22-week internship in Year 3, adopts a modular structure where you are given a strong foundation in fundamental and technological applications of chemistry, including biological science and materials science. There are three areas of specialisation: Industrial Chemistry, Materials Science, and Pharmaceutical Science.

The Industrial Chemistry option offers a broad-based industry-focused curriculum to provide you with relevant skills and knowledge in chemistry to work across the chemical sectors, in particular, commercial laboratories, petrochemical, specialty chemicals and pharmaceutical sectors.

The Materials Science option focuses on building a strong foundation in chemistry, and an emphasis on materials science. You will learn to apply chemistry to develop advanced materials, like biomaterials, nanomaterials, green materials and composite materials to design innovative products for the rapidly evolving modern world.

The Pharmaceutical Science option integrates chemistry with biological sciences to prepare you for a career in the pharmaceutical and biopharmaceutical sectors. You will learn specialised modules related to drug action on diseases, regulations, drug analyses and pharmaceutical manufacturing.

We take pride in providing you with extensive laboratory training and experiential learning in DAPC.

CAREER OPPORTUNITIES AND FURTHER EDUCATION

Graduates may find employment as laboratory analysts, application specialists, research assistants in the chemical, biomedical and materials industries. Many of our graduates gain direct entry into the second or third year of degree programmes at local or overseas institutions. Related degree programmes include Chemistry, Pharmaceutical Science, Materials Science and Engineering.
The SP elective framework offers students options to pursue their passion and/or meet different career needs, and is an integral part of the holistic education we seek to provide to our students.

**Electives**

**Stage 1A**
- CP4128 Environmental Studies 60
- CP4133 Laboratory Skills in Analytical and Physical Chemistry 30
- CP4137 Physical Chemistry 45
- CP4138 Analytical Chemistry 45
- CP4147 Materials and its Applications 60
- LC0260 Critical and Analytical Thinking Education 1 30
- MS2125 Basic Mathematics 60
- SP201A Education and Career Guidance 1 15

**Stage 1B**
- CP4121 Pharmaceutical Microbiology 60
- CP4136 Laboratory Skills in Inorganic and Organic Chemistry 30
- CP4139 Inorganic Chemistry 45
- CP4140 Organic Chemistry 45
- LC0265 Communicating for Professional Effectiveness (Proposal) 30
- LC0261 Narrative Thinking 30
- MS2128 Engineering Mathematics I 60

**Stage 2A**
- CP4127 Organic Chemistry – Reaction Mechanism 60
- CP4144 Materials Characterisation and Failure Analysis 60
- CP4149 Materials Laboratory Skills 30
- LC0262 Design Thinking for Social Innovation 45
- MS2232 Mechanics of Materials 60
- MS2237 Engineering Mathematics II 60
- Elective 1 45/60

**Stage 2B**
- CP4009 Instrumental Analysis 60
- CP4036 Quality Assurance & Statistics 60
- CP4042 Polymeric Materials 60
- CP4046 Materials Processing 60
- CP4048 Materials Processing Skills 30
- LC0257 Communicating for Professional Effectiveness 30
- SP202A Education and Career Guidance 2 30
- Elective 2 45/60

**Stage 3A**
- IC2002 Internship Programme (22 weeks)
- CP4086 Laboratory Management 60
- CP4153 Materials Innovation & Design 45
- CP4154 Advanced Materials 45
- CP4170 Capstone Project 60
- CP4171 Coatings, Adhesives & Elastomers 60
- Elective 3 45/60

**Stage 3B**
- CP4160 Petrochemicals and its Lab Techniques 45
- CP4164 Advanced Materials 45
- CP4166 cGMP and Validation 45
- Elective 3 45/60

**Stage 4**
- CP4002 Internship Programme (22 weeks)
- CP4103 Advanced Organic Chemistry 60
- CP4123 Pharmaceutical Manufacturing 45
- CP4156 cGMP and Validation 45
- CP4158 Biosensor Engineering Principles 45

---

**REFERENCES**

The SP elective framework offers students options to pursue their passion and/or meet different career needs, and is an integral part of the holistic education we seek to provide to our students. The learning experiences of this elective framework help students in their development as self-directed, versatile, life-long learners, which are essential in today’s volatile and changing societal as well as occupational landscapes.

For a list of electives offered, please visit www.sp.edu.sg

---

**Diploma in Biomedical Science (DBS)**

The Medical Technology curriculum integrates biological sciences with clinical and research aspects of clinical laboratory sciences. Research and problem-solving skills are honed through project work in our laboratories; hospitals and/or national research institutions.

The Medical Technology students are engaged in research, medical and cardiac laboratories. A challenging career awaits our graduates in the medical and healthcare sectors.

**CAREER OPPORTUNITIES AND FURTHER EDUCATION**

A well-regarded by local and overseas institutions of higher learning, many graduates have been granted direct entry into second or third year of degree programmes. These institutions also sponsored many of our alumni in their MSc and/or PhD education. Beyond the traditional degree programmes in biomedical sciences, some of our graduates have gone into medicine, dentistry, veterinary science, pharmacy and physiotherapy.
Chemical & Life Sciences

COURSE MODULES

For a list of electives offered, please visit www.sp.edu.sg.

The learning experiences of this elective framework help students in their development as self-directed, versatile, lifelong learners, which are essential in today’s volatile and changing societal and occupational landscape.

The SP elective framework offers students options to pursue their passion and/or meet different career needs, and is an integral part of the holistic education we seek to provide to our students.

Electives

<table>
<thead>
<tr>
<th>Course Module</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP202Y Project</td>
<td>60</td>
</tr>
<tr>
<td>CP202X Blood Banking</td>
<td>60</td>
</tr>
<tr>
<td>CP203X Histological Techniques</td>
<td>45</td>
</tr>
<tr>
<td>CP203Y Haematology</td>
<td>60</td>
</tr>
<tr>
<td>CP2038 Clinical Chemistry</td>
<td>60</td>
</tr>
<tr>
<td>CP2034 Clinical Instrument Analysis</td>
<td>45</td>
</tr>
<tr>
<td>CP2301 Medical Microbiology</td>
<td>60</td>
</tr>
<tr>
<td>CP2202 Project*</td>
<td>60</td>
</tr>
<tr>
<td>CP2033 Applied Immunology</td>
<td>60</td>
</tr>
<tr>
<td>CP2037 Applied Haematology</td>
<td>60</td>
</tr>
<tr>
<td>CP2039 Applied Clinical Chemistry</td>
<td>60</td>
</tr>
<tr>
<td>CP2031 Molecular Medical Microbiology</td>
<td>60</td>
</tr>
<tr>
<td>CP2035 Elective 3</td>
<td>45/60</td>
</tr>
</tbody>
</table>

Appendix

Singapore’s position as a Biohub with rapidly expanding biotechnology and biologics industries opens the door to many career possibilities. The life sciences sector in Singapore has a bright and exciting future based on its research and continued scientific excellence as well as business growth. Being a pioneer in offering biotechnology training to post-secondary school students, SP has been providing manpower and capacity training in this growth area for the global marketplace.

References

The SP elective framework offers students options to pursue their passion and/or meet different career needs, and is an integral part of the holistic education we seek to provide to our students. The learning experiences of this elective framework help students in their development as self-directed, versatile, lifelong learners, which are essential in today’s volatile and changing societal as well as occupational landscapes.

For a list of electives offered, please visit www.sp.edu.sg.
A HEAD START
The three-year Diploma in Biotechnology (DBT) curriculum provides a strong foundation in cell and molecular genetics, immunology, microbiology, physiology and biochemistry as well as a core programme in genomics and proteomics. Our diploma places strong emphasis on bioscience and biotechnologies, cell and tissue engineering, supplemented with necessary skills in bioprocess and laboratory management.

This diversity of subjects covered provides interdisciplinary knowledge suitable for laboratory-based careers within universities, government or private research institutions. Graduates can also work in industries related to translational science and medicine, life science, biomedicine, biopharmaceutical, commerce, food or education industries.

COURSE MODULES

The diploma places a strong emphasis on hands-on training in our specialised laboratories and also field-based learning through a structured internship programme as well as group projects. Local and overseas internships provide students with an opportunity to work with prominent scientists and researchers in universities and research institutions.

CAREER OPPORTUNITIES AND FURTHER EDUCATION
Our DBT graduates are well placed for employment in all areas of the life sciences. Graduates will be able to excel in niche areas of research and development in applied sciences and translational medicines. Career opportunities are also available in companies involved in clinical trials, biotechnology, biologics, biopharmaceuticals, agriculture and healthcare.

The DBT course is well recognised by many local and overseas universities. Graduates can expect up to two years exemption for entry into undergraduate programmes in many overseas universities. The undergraduate programmes available include biological and life sciences, biomedicine, bioengineering, pharmacy, medicine, dentistry and teaching. Many of our alumni have been awarded scholarships to pursue undergraduate, postgraduate and post-doctoral education.

GLOBAL RECOGNITION FOR QUALITY AND INNOVATIVE PROGRAMME
DCHE is the first diploma programme in Singapore to be fully accredited by the Institution of Chemical Engineers (IChemE). UK. The full IChemE accreditation signifies worldwide recognition by universities and industries on the rigor and quality of our programme.

DCHE is also the first chemical engineering diploma course in the world to adopt a Conceive-Design-Implement-Operate (CDIO) education framework, which is in collaboration with top universities such as Massachusetts Institute of Technology, United States and Tsinghua University, China.

Under this CDIO education framework, we transform traditionally boring and dry engineering education to an exciting and purposeful one that balances theoretical knowledge with realistic applications of chemical engineering principles. Testifying to the quality of our programme, DCHE was the first chemical engineering programme to be awarded ‘Excellence in Education and Training in Chemical Engineering’ at the inaugural IChemE Singapore Innovation and Excellence Awards in 2010. DCHE subsequently clinched the same coveted award again in 2012 and 2015.

TRAINING OPPORTUNITIES
We ensure that all our students have ample industrial exposure via the enhanced internship programme where all students are sent out to relevant local/overseas chemical companies/institutions for industrial attachments.

CAREER OPPORTUNITIES AND FURTHER EDUCATION
Singapore’s position as a global chemical hub has grown by housing many of the world’s leading energy and chemical companies and has attracted investments in excess of $35 billion. In addition, many of the world’s top oil and gas, pharmaceutical, semiconductor, clean energy, water, food and healthcare product companies have invested in manufacturing facilities in Singapore, as well as making Singapore their regional headquarters to drive their business expansion in Asia [Source: Singapore Economic Development Board, 2016].

Singapore is a global and world-class chemical industrial hub with a wide range of companies specialising in the manufacture of products. These include petrochemicals, specialty chemicals, pharmaceuticals, biologics, semiconductors, clean energy, water, food and healthcare products. Chemical engineering is thus the discipline where sciences are combined with applied mathematics and engineering principles, taking laboratory ideas and turning them into valued products in cost-effective, safe, cutting-edge and sustainable ways, suitable for industry.
Graduates from DCHE will thus be able to find employment in a thriving local (and even overseas) Energy and Chemicals industry.

Chemical engineering is one of the highest paid engineering professions. According to 2017 Employment and Monthly Gross Starting Salary of Polytechnic Graduates survey conducted by Singapore Ministry of Manpower, our graduates in full-time employment draw a mean monthly starting salary ranging from $2,000 to $2,400.

Also, more than half of our graduates are successfully accepted into well-established local and overseas universities every year. Many of our graduates are also offered module exemptions or direct entry into the second or third year of their university degree programmes.

Our graduates can also apply for either a two and a half year degree programme in chemical engineering that is offered by Technical University of Munich (TUM), Germany and Singapore Institute of Technology (SIT) or a two-year degree programme in chemical engineering that is offered by Newcastle University (NU), United Kingdom and SIT.

### COURSE MODULES

#### FULL-TIME

<table>
<thead>
<tr>
<th>FULL-TIME</th>
<th>FIRST YEAR</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 1A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP4001</td>
<td>Analytical and Physical Chemistry</td>
<td>60</td>
</tr>
<tr>
<td>CP5090</td>
<td>Introduction to Chemical Engineering</td>
<td>75</td>
</tr>
<tr>
<td>CP5091</td>
<td>Materials for Design</td>
<td>60</td>
</tr>
<tr>
<td>CP5201</td>
<td>Lab and Process Skills I</td>
<td>45</td>
</tr>
<tr>
<td>LCG056</td>
<td>Communicating for Project Effectiveness</td>
<td>30</td>
</tr>
<tr>
<td>CP5390</td>
<td>Critical and Analytical Thinking</td>
<td>30</td>
</tr>
<tr>
<td>MS2125</td>
<td>Basic Mathematics</td>
<td>60</td>
</tr>
<tr>
<td>SP101A</td>
<td>Education and Career Guidance I</td>
<td>15</td>
</tr>
</tbody>
</table>

#### Stage 1B

<table>
<thead>
<tr>
<th>FULL-TIME</th>
<th>FIRST YEAR</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP4006</td>
<td>Inorganic and Organic Chemistry</td>
<td>75</td>
</tr>
<tr>
<td>CP5092</td>
<td>Chemical Engineering Thermodynamics</td>
<td>60</td>
</tr>
<tr>
<td>CP5093</td>
<td>Heat Transfer and Equipment</td>
<td>60</td>
</tr>
<tr>
<td>CP5094</td>
<td>Fluid Flow and Equipment</td>
<td>60</td>
</tr>
<tr>
<td>CP5202</td>
<td>Lab and Process Skills 2</td>
<td>45</td>
</tr>
<tr>
<td>LCG051</td>
<td>Narrative Thinking</td>
<td>30</td>
</tr>
<tr>
<td>MS2128</td>
<td>Engineering Mathematics I</td>
<td>60</td>
</tr>
</tbody>
</table>

#### FULL-TIME

<table>
<thead>
<tr>
<th>FULL-TIME</th>
<th>SECOND YEAR</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 2A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP5065</td>
<td>Introduction to Chemical Product Design</td>
<td>60</td>
</tr>
<tr>
<td>CP5095</td>
<td>Separation Processes and Simulation</td>
<td>75</td>
</tr>
<tr>
<td>CP5096</td>
<td>Process Instrumentation and Control</td>
<td>75</td>
</tr>
<tr>
<td>CP5203</td>
<td>Process Operation Skills I</td>
<td>45</td>
</tr>
<tr>
<td>MS2250</td>
<td>Engineering Mathematics II</td>
<td>60</td>
</tr>
<tr>
<td>LCG257</td>
<td>Communicating for Professional Effectiveness</td>
<td>30</td>
</tr>
<tr>
<td>Elective 1</td>
<td></td>
<td>45,60</td>
</tr>
</tbody>
</table>

#### Stage 2B

<table>
<thead>
<tr>
<th>FULL-TIME</th>
<th>SECOND YEAR</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP5070</td>
<td>Chemical Product Design and Development</td>
<td>60</td>
</tr>
<tr>
<td>CP5077</td>
<td>Chemical Reaction Engineering</td>
<td>60</td>
</tr>
<tr>
<td>CP5098</td>
<td>Chemical Engineering Design Calculations</td>
<td>60</td>
</tr>
<tr>
<td>CP5204</td>
<td>Process Operation Skills 2</td>
<td>45</td>
</tr>
<tr>
<td>LCG602</td>
<td>Design Thinking for Social Innovation</td>
<td>45</td>
</tr>
<tr>
<td>SP205A</td>
<td>Education and Career Guidance II</td>
<td>30</td>
</tr>
<tr>
<td>Elective 2</td>
<td></td>
<td>2,45</td>
</tr>
</tbody>
</table>

#### FULL-TIME

<table>
<thead>
<tr>
<th>FULL-TIME</th>
<th>THIRD YEAR</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 3A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP5062</td>
<td>Plant Design, Economics and Sustainable Development</td>
<td>75</td>
</tr>
<tr>
<td>CP5099</td>
<td>Pharmaceutical Engineering</td>
<td>60</td>
</tr>
<tr>
<td>CP5100</td>
<td>Biopharmaceutical Engineering</td>
<td>60</td>
</tr>
<tr>
<td>CP5301</td>
<td>Process Plant Safety and Engineering Ethics</td>
<td>45</td>
</tr>
<tr>
<td>MS155</td>
<td>Capstone Project*</td>
<td>60</td>
</tr>
<tr>
<td>Elective 3</td>
<td></td>
<td>45,60</td>
</tr>
</tbody>
</table>

#### Stage 3B

<table>
<thead>
<tr>
<th>FULL-TIME</th>
<th>THIRD YEAR</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP515A</td>
<td>Capstone Project*</td>
<td>60</td>
</tr>
<tr>
<td>IC2003</td>
<td>Internship Programme</td>
<td>22 weeks</td>
</tr>
</tbody>
</table>

### Elective Modules

<table>
<thead>
<tr>
<th>COURSE MODULE</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP4176</td>
<td>60</td>
</tr>
<tr>
<td>CP5006</td>
<td>60</td>
</tr>
<tr>
<td>CP5038</td>
<td>60</td>
</tr>
<tr>
<td>CP5071</td>
<td>60</td>
</tr>
<tr>
<td>CP5082</td>
<td>60</td>
</tr>
<tr>
<td>CP5083</td>
<td>45</td>
</tr>
<tr>
<td>CP5084</td>
<td>45</td>
</tr>
<tr>
<td>CP5087</td>
<td>45</td>
</tr>
<tr>
<td>CP5089</td>
<td>45</td>
</tr>
</tbody>
</table>

* Module covered in two semesters.

#### Diploma in Food Science & Technology (DFST)

The food industry is an important sector for Singapore. In Asia, the growing demand for high quality, nutritious and safe foods is driven mainly by a rapidly growing middle class. This places our food industry in a good position to innovate and market value-added products for these emerging markets.

Being the first polytechnic to provide training in food science and technology, SP has produced industry leaders in the field. With our modern, well-equipped food laboratories and strong links with the food industry, we are well positioned to prepare our students for challenging, diverse and rewarding careers in the industry. Product innovation has always been a priority in our curriculum and students are given plenty of opportunities to work on real-life, commercial projects. Some of these have translated into commercial products including the Lemun & Kalamansi drink, Two-Ply Noodles, XO Kaya, Yamie Rice, Rainbow Rice, as well as low Glycemic Index (GI) cupcakes, brownies and noodles.

Recognising SP’s capabilities and facilities, the Food Innovation & Resource Centre (FIRC) was set up at SP in April 2007 under SPRING Singapore’s Technology Innovation Programme initiative. This one-stop centre provides integrated consultancy, advisory and training sessions for food enterprises. FIRC provides enhanced internship, final-year projects, close linkages to food companies and job opportunities for our DFST graduates.

#### B.I.T.E. PROGRAMME

The Business design Infused with Technology Experience (BITE) programme is available to students in Year 3. It offers opportunities for students to work with industry partners through FIRC. It includes enhanced internship and final-year project components which challenge students’ ability to apply food science and technology concepts in real-life, commercial projects. Students will be assigned to projects that expose them to design thinking, product development, scale up with pilot plant trial runs, packaging selection, shelf life studies, food analysis and sensory evaluation.

Changes to the programmes and modules are made from time to time based on industry needs and the latest developments in the field of study. For a list of electives offered, please visit www.sp.edu.sg
The food industry currently employs our graduates to work in product development, quality assurance, processing, sales and marketing in both the food manufacturing and food services sectors. Career opportunities are also open to our graduates in the chemical, pharmaceutical and packaging industries.

FURTHER EDUCATION

DFST graduates can apply for related degree programmes at local or overseas universities such as the Bachelor in Science – Food Science and Technology at the National University of Singapore; or the Degree in Biological Sciences with a Second Major in Food Science and Technology or the Degree in Chemical & Biomolecular Engineering with a Second Major in Food Science and Technology or the Degree in Chemistry & Biological Chemistry with a Second Major in Food Science and Technology at the Nanyang Technological University. They can also apply for admission to the Bachelor in Food Technology (Honours) programme or the Bachelor of Professional Studies in Culinary Arts Management offered by the Singapore Institute of Technology.

CAREER OPPORTUNITIES

The focus on nutrition and health science in this diploma prepares graduates to promote a healthier lifestyle through sound nutrition, active physical, mental and social living to reduce disease risks. Our graduates are well-prepared to play a significant role in the government’s push for citizens to adopt a healthy and better quality lifestyle. The entire population will certainly reap benefits as the key to overcoming escalating healthcare costs is to adopt a healthy lifestyle from young by eating and exercising.

Diploma in Nutrition, Health & Wellness (DNHW)

You may want to consider this course if you genuinely care for others’ well-being and would like to help them take responsibility for their own health. Our graduates will be well-prepared to promote and enhance better quality lifestyles and reduce disease risks through our comprehensive programme which integrates nutrition, health and wellness with a science-based curriculum.

**PRACTICAL TRAINING**

Students will receive practical training at the Nutrition, Health and Wellness Centre which houses the physical fitness and demonstration laboratories. These facilities, equipped with the latest equipment and experimental set-ups, will provide students with valuable hands-on experience. Students can also look forward to honing their skills further with an internship or the Degree in Biological Sciences with a Second Major in Food Science and Technology.

There are potential economic opportunities for Singapore as industries leverage on consumers’ pursuit of health and wellness as a business growth driver. With an ageing population, Singapore requires good solutions and can act as a platform for industries to develop new ideas, products and services.

The 2012 Ministry of Health (MOH) Committee of Supply Speech on Healthcare 2020 states that Singapore is ‘committed to improving the healthcare system and to promoting a healthier lifestyle through sound nutrition, active physical, mental and social living to reduce disease risks. Our graduates are well-poised to play a significant role in the government’s push for citizens to adopt a healthy and better quality lifestyle. The entire population will certainly reap benefits as the key to overcoming escalating healthcare costs is to adopt a healthy lifestyle from young by eating and exercising.’

The SP elective framework offers students options to pursue their passion and/or meet different career needs, and is an integral part of the holistic education we seek to provide to our students.

**COURSE MODULES**

- **Stage 1A**
  - CP4001 Analytical & Physical Chemistry 60
  - CP4002 Introductory Food Science 75
  - CP4003 Nutrition 75
  - CP4004 Food Processing Principles 60
  - LC0260 Critical and Analytical Thinking 30

- **Stage 1B**
  - SP101A Education and Career Guidance 1
  - MS212S Basic Mathematics 60
  - CP4006 Inorganic & Organic Chemistry 75
  - CP4007 Applied Nutrition 60
  - CP4008 Basic Microbiology 60
  - CP4009 Culinary Science 30
  - LC0257 Communicating for Effectiveness 30

- **Stage 2A**
  - CP6020 Project 15
  - CP6021 Food Product Development and Packaging 60
  - CP6022 Food Process Engineering 60
  - CP6024 Organic Chemistry – Reaction Mechanism 60
  - CP6025 Instrumental Analysis 60
  - CP6033 Food Safety and Quality Management 60

- **Stage 2B**
  - SP201A Education and Career Guidance 2 30
  - CP602Y Project 15
  - CP6031 Food Process Engineering 60
  - CP6032 Instrumental Analysis 60
  - CP6033 Food Safety and Quality Management 60

- **Stage 3A**
  - CP6040 Process Design and Implementation 75
  - CP6045 Food Trends and Regulations 30
  - LC0257 Communicating for Professional Effectiveness 30

- **Stage 3B**
  - CP6040 Process Design and Implementation 75
  - CP6045 Food Trends and Regulations 30

- **Stage 4**
  - CP6040 Process Design and Implementation 75
  - CP6045 Food Trends and Regulations 30

**Description**

The SP elective framework offers students options to pursue their passion and/or meet different career needs, and is an integral part of the holistic education we seek to provide to our students. The learning experiences of this elective framework help students in their development as self-directed, versatile, life-long learners, which are essential in today’s volatile and changing societal as well as occupational landscapes.

For a list of electives offered, please visit www.sp.edu.sg

**References**

- Singapore Polytechnic Prospectus 2019/20
- Singapore Polytechnic Prospectus 2019/20
- Singapore Polytechnic Prospectus 2019/20
### COURSE MODULES

**Full-Time**

<table>
<thead>
<tr>
<th>Stage 1A</th>
<th>FIRST YEAR</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP4021</td>
<td>Analytical and Physical Chemistry</td>
<td>60</td>
</tr>
<tr>
<td>CP7002</td>
<td>Nutrition</td>
<td>75</td>
</tr>
<tr>
<td>CP7003</td>
<td>Introduction to Health and Wellness</td>
<td>45</td>
</tr>
<tr>
<td>CP7004</td>
<td>Cell Biology: Microbiology and Immunology</td>
<td>60</td>
</tr>
<tr>
<td>LC0056</td>
<td>Communicating for Project Effectiveness (Report)</td>
<td>30</td>
</tr>
<tr>
<td>LC0260</td>
<td>Critical and Analytical Thinking</td>
<td>30</td>
</tr>
<tr>
<td>MS2101</td>
<td>Mathematics A</td>
<td>60</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stage 2A</th>
<th>SECOND YEAR</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP7011</td>
<td>Introduction to Biochemistry</td>
<td>60</td>
</tr>
<tr>
<td>CP7012</td>
<td>Applied Nutrition</td>
<td>60</td>
</tr>
<tr>
<td>CP7013</td>
<td>Diet and Nutrition Assessment</td>
<td>60</td>
</tr>
<tr>
<td>CP7018</td>
<td>Health and Ageing</td>
<td>60</td>
</tr>
<tr>
<td>CP7022</td>
<td>Basic Biomechanics</td>
<td>30</td>
</tr>
<tr>
<td>LC0267</td>
<td>Communicating for Professional Effectiveness</td>
<td>30</td>
</tr>
<tr>
<td>LC0262</td>
<td>DesignThinking for Social Innovation</td>
<td>45</td>
</tr>
<tr>
<td>Elective 1</td>
<td>45/60</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stage 2B</th>
<th>SECOND YEAR</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP7005</td>
<td>Inorganic and Organic Chemistry</td>
<td>75</td>
</tr>
<tr>
<td>CP6001</td>
<td>Introductory Food Science</td>
<td>75</td>
</tr>
<tr>
<td>CP7005</td>
<td>Anatomy and Physiology</td>
<td>60</td>
</tr>
<tr>
<td>CP7006</td>
<td>Fitness and Wellness throughout the Lifespan</td>
<td>60</td>
</tr>
<tr>
<td>LC0261</td>
<td>Narrative Thinking</td>
<td>30</td>
</tr>
<tr>
<td>MS2103</td>
<td>Mathematics B</td>
<td>75</td>
</tr>
<tr>
<td>SP101A</td>
<td>Education and Career Guidance 1</td>
<td>15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stage 3A</th>
<th>THIRD YEAR</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP7013</td>
<td>Project*</td>
<td>60</td>
</tr>
<tr>
<td>CP7015</td>
<td>Clinical Nutrition</td>
<td>60</td>
</tr>
<tr>
<td>CP7022</td>
<td>Public Health and Community Nutrition</td>
<td>60</td>
</tr>
<tr>
<td>CP7023</td>
<td>Sports and Exercise Nutrition</td>
<td>60</td>
</tr>
<tr>
<td>CP7028</td>
<td>Physical Fitness Assessment and Exercise Prescription</td>
<td>75</td>
</tr>
<tr>
<td>Elective 3</td>
<td>45/60</td>
<td></td>
</tr>
</tbody>
</table>

### Diploma in Optometry (DOPT)

Optometry is part of the primary healthcare system and is the study of visual defects and functional disorders of the eye. The scope of Optometry includes managing refractive errors (such as myopia and presbyopia) through spectacle and contact lens correction, managing binocular vision problems such as lazy eyes, and detecting common eye diseases (such as cataract, diabetic retinopathy and glaucoma).

The Diploma in Optometry (DOPT) is a 3-year full-time course which aims to produce professionally competent optometrists serving as primary eye care health practitioners. The emphasis is on serving patients, and the clinical content of the course begins in the first week, increasing steadily through the three-year programme.

The Ministry of Health and employers have projected good demand for graduate optometrists due to the high prevalence of myopia in children and a rapidly ageing population. We were the first tertiary institution in Singapore to offer this course in 1994. As registered optometrists with the Optometrists and Opticians Board, our graduates have enjoyed excellent employment opportunities in the private and public sectors.

**Electives**

The SP elective framework offers students options to pursue their passion and/or meet different career needs, and is an integral part of the holistic education we seek to provide to our students. The learning experiences of this elective framework help students in their development as self-directed, versatile, life-long learners, which are essential in today’s volatile and changing societal as well as occupational landscapes.

For a list of electives offered, please visit [www.sp.edu.sg](http://www.sp.edu.sg).

Graduates will find employment as nutrition, health and wellness technologists, assistant nutritionists, health promoters, lifestyle coaches, sales and marketing executives for health related industries, wellness coordinators, public health coordinators and healthy lifestyle promotion coordinators.

The diploma also prepares graduates for further studies in both local and overseas universities offering courses in nutrition and dietetics, medicine, physiotherapy, health promotion, sports science, education as well as in other disciplines. Graduates have been granted direct entry into second year of some degree programmes overseas. Many of our graduates have been awarded scholarships to pursue undergraduate programmes, such as dietetics, food and human nutrition, medical social work, physiotherapy, sports science and management, both locally and overseas.

Graduates will find employment as nutrition, health and wellness technologists, assistant nutritionists, health promoters, lifestyle coaches, sales and marketing executives for health related industries, wellness coordinators, public health coordinators and healthy lifestyle promotion coordinators.

The diploma also prepares graduates for further studies in both local and overseas universities offering courses in nutrition and dietetics, medicine, physiotherapy, health promotion, sports science, education as well as in other disciplines. Graduates have been granted direct entry into second year of some degree programmes overseas. Many of our graduates have been awarded scholarships to pursue undergraduate programmes, such as dietetics, food and human nutrition, medical social work, physiotherapy, sports science and management, both locally and overseas.

Graduates will find employment as nutrition, health and wellness technologists, assistant nutritionists, health promoters, lifestyle coaches, sales and marketing executives for health related industries, wellness coordinators, public health coordinators and healthy lifestyle promotion coordinators.

The diploma also prepares graduates for further studies in both local and overseas universities offering courses in nutrition and dietetics, medicine, physiotherapy, health promotion, sports science, education as well as in other disciplines. Graduates have been granted direct entry into second year of some degree programmes overseas. Many of our graduates have been awarded scholarships to pursue undergraduate programmes, such as dietetics, food and human nutrition, medical social work, physiotherapy, sports science and management, both locally and overseas.

Graduates will find employment as nutrition, health and wellness technologists, assistant nutritionists, health promoters, lifestyle coaches, sales and marketing executives for health related industries, wellness coordinators, public health coordinators and healthy lifestyle promotion coordinators.

The diploma also prepares graduates for further studies in both local and overseas universities offering courses in nutrition and dietetics, medicine, physiotherapy, health promotion, sports science, education as well as in other disciplines. Graduates have been granted direct entry into second year of some degree programmes overseas. Many of our graduates have been awarded scholarships to pursue undergraduate programmes, such as dietetics, food and human nutrition, medical social work, physiotherapy, sports science and management, both locally and overseas.
PRactical Training

The school has excellent clinical and laboratory facilities. The SP Optometry Centre, where members of the public come for eye examination, provides students with hands-on experience using state-of-the-art precision instruments and equipment. Our students start working with patients in Year 1 and continue with greater responsibilities in the subsequent years. To widen their scope of experience in Optometry, students will be assigned to perform attachments at selected hospitals, contact lens and ophthalmic lens companies. In their final year, students will complete a semester-long internship.

COURSE MODULES

For a list of electives offered, please visit www.sp.edu.sg

## First Year

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Module Name</th>
<th>Credits</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP3047</td>
<td>Geometrical and Physical</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Optics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP3055</td>
<td>Human Physiology and</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cell Biology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP3060</td>
<td>Clinical Optometry I</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>CP2077</td>
<td>Ophthalmic Optics</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>LC0244</td>
<td>Communicating for Personal</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>and Team Effectiveness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC0260</td>
<td>Critical and Analytical</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thinking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS2011</td>
<td>Mathematics A</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>SP201A</td>
<td>Education and Career</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Guidance 1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Second Year

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Module Name</th>
<th>Credits</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP3056</td>
<td>Ocular Disease I</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>CP3062</td>
<td>Clinical Optometry II</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>CP3066</td>
<td>Contact Lens</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>CP4001</td>
<td>Analytical and Physical</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chemistry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC0263</td>
<td>Design Thinking for Social</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Innovation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SP205A</td>
<td>Education and Career</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Guidance 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Elective 2</td>
<td>45/60</td>
<td></td>
</tr>
</tbody>
</table>

## Third Year

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Module Name</th>
<th>Credits</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP3067</td>
<td>Ocular Disease II</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>CP3064</td>
<td>Low Vision and Community</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Health Optometry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP3073</td>
<td>Paediatric Optometry</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>CP3075</td>
<td>Clinical Practice</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>CP3077</td>
<td>Contact Lens Practice</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Elective 3</td>
<td>45/60</td>
<td></td>
</tr>
</tbody>
</table>

## Diploma in Perfumery & Cosmetic Science (DPCS)

The Diploma in Perfumery & Cosmetic Science (DPCS) offers training in Chemistry with applications in Perfumery and Cosmetic Science. The lucrative chemical and consumer care sectors are gaining a strong presence in Singapore as evident by the sizeable investments made here, which exceed S$30 billion. One huge investment project is the opening of a mega innovation centre in Biopolis by Procter and Gamble which is well-known for its top-selling SK-II brand. The fragrance and flavours giant, Givaudan also has a strong footing in Singapore with the recent announcement of its largest Asia Pacific Fragrance Creative Centre alongside the launch of its prestigious Perfumery School. As the optimum for the consumer care industry all over the world continues to grow, it is timely to develop a skilled pool of talent, particularly in Asia. Being the only local institute of higher learning that offers a formal training in this discipline, the course aims to equip the individual with the right skills to serve this practical and recession-resistant industry. To help Singapore become a regional beauty hub, we welcome passionate individuals to join us and make a difference in shaping the future landscape of this sector.

APPLIED TRAINING

DPCS is the only local diploma programme that offers comprehensive training in chemistry, perfumery and cosmetic science as well as business and marketing skills for the respective chemical and consumer care sectors. This programme not only prepares its graduates to serve the chemical sectors encompassing the fields of fragrance, personal care and cosmetics, it also prepares them for further studies in universities.

Students will be inculcated with a strong foundation in chemistry before acquiring advanced knowledge and valuable practical skills in the various areas of scientific applications. Theoretical training is further reinforced by engaging practical sessions in the state-of-the-art Perfumery & Cosmetic Science Centre (PCSC). The practical sessions include olfactive exercises, creation of perfumes and cosmetic products, synthesis of delightful-smelling organic specimens and extraction of essential oils.
Apart from the Romancing Singapore series of perfumes, a nature-scented air fresher was launched at Expo 2012 in Yeosu, Korea. This was a collaboration with the Ministry of the Environment and Water Resources of Singapore (MEWR) and Pico Art International Pte Ltd to elicit the theme “Nature conservation goes hand in hand with urbanisation” at the Singapore Pavilion. The most recent students’ creation is an ozonic perfume named Splash, made in commemoration with SP’s 60th anniversary.

Our attachment programme with relevant industries plays a crucial role in training our students in a real-world context. Collaborations with reputable local/offshore universities, as well as renowned flavour and fragrance houses, cosmetic companies and other chemical companies have been established.

### Career Opportunities and Further Education

Employment opportunities are excellent for DPCS graduates. Potential employers in the chemical industry range from multinational corporations to small and medium enterprises. Being the only tertiary institution that offers training in the perfumery, personal care and cosmetic science disciplines, our graduates hold the advantage when seeking employment in these sectors. Moreover, their knowledge and skills acquired enable them the versatility to explore careers in these areas within the chemical and consumer care sectors. You may gain entry into the second and third year of degree programmes in local and overseas universities. You can pursue further studies in the areas of cosmetic science, perfumery and chemistry.

### Continuing Education

From time to time, the school also conducts work learn programmes. Short, tailored, WSQ and bite size courses for personnel from industry in disciplines related to the school’s expertise. Available courses include optometry; binocular vision management; phlebology; environmental infection control and management; immunohematology; biosafety; microbiology; work place safety and health; engineering drawings; chemical process operations; monitoring and automation; process units and utilities; formulation science; materials characterisation and testing; manufacturing processes in biologics & active pharmaceutical ingredients; fragrance creation; cosmetic formulation; Good Manufacturing Practices (GMP); Good Distribution Practices (GDP); chemical safety; analytical chemistry; laboratory management; forensic chemistry; culinary nutrition; food innovation and lifestyle. Details of these courses are available online under Continuing Education in SP webpage.

### Courses

<table>
<thead>
<tr>
<th>Full-Time</th>
<th>First Year</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP4528</td>
<td>Environmental Studies</td>
<td>60</td>
</tr>
<tr>
<td>CP4529</td>
<td>Laboratory Skills in Inorganic and Organic Chemistry</td>
<td>30</td>
</tr>
<tr>
<td>CP4531</td>
<td>Inorganic Chemistry</td>
<td>45</td>
</tr>
<tr>
<td>CP4532</td>
<td>Organic Chemistry</td>
<td>45</td>
</tr>
<tr>
<td>CP4543</td>
<td>Pharmaceutical Microbiology</td>
<td>60</td>
</tr>
<tr>
<td>LC0265</td>
<td>Communicating for Project Effectiveness (Proposal)</td>
<td>30</td>
</tr>
<tr>
<td>LC0266</td>
<td>Critical and Analytical Thinking</td>
<td>30</td>
</tr>
<tr>
<td>MS2125</td>
<td>Basic Mathematics</td>
<td>60</td>
</tr>
<tr>
<td>SP101A</td>
<td>Education and Career Guidance 1</td>
<td>15</td>
</tr>
<tr>
<td><strong>Stage 2A</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP4530</td>
<td>Introduction to Fragrances and Flavours</td>
<td>60</td>
</tr>
<tr>
<td>CP4540</td>
<td>Organic Chemistry- Reaction Mechanism</td>
<td>60</td>
</tr>
<tr>
<td>CP4541</td>
<td>Advanced Physical Chemistry</td>
<td>60</td>
</tr>
<tr>
<td>CP4542</td>
<td>Instrumental Analysis</td>
<td>60</td>
</tr>
<tr>
<td>LC0262</td>
<td>Design Thinking for Social Innovation</td>
<td>45</td>
</tr>
<tr>
<td>MS2237</td>
<td>Engineering Mathematics II</td>
<td>30</td>
</tr>
<tr>
<td>SP201A</td>
<td>Communication and Career Guidance 2 Elective 1</td>
<td>45/60</td>
</tr>
<tr>
<td><strong>Stage 2B</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP4533</td>
<td>Colloid Chemistry</td>
<td>60</td>
</tr>
<tr>
<td>CP4534</td>
<td>Fragrance and Flavours Chemistry</td>
<td>60</td>
</tr>
<tr>
<td>CP4535</td>
<td>Formulation Science of Cosmetics</td>
<td>60</td>
</tr>
<tr>
<td>CP4536</td>
<td>Laboratory Management (for FEEL &amp; SENSE)</td>
<td>60</td>
</tr>
<tr>
<td>CP4537</td>
<td>Troubleshooting with Project (for APPEAL)</td>
<td>11 weeks</td>
</tr>
<tr>
<td>LC0257</td>
<td>Communicating for Professional Effectiveness Elective 2</td>
<td>45/60</td>
</tr>
<tr>
<td><strong>Stage 3A</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP4538</td>
<td>Safety Assessment, GMP and Cosmetic Regulations</td>
<td>60</td>
</tr>
<tr>
<td>IG202Y</td>
<td>Extended Internship Programme*</td>
<td>17 weeks</td>
</tr>
<tr>
<td>CP4539</td>
<td>The Art of Perfumery</td>
<td>60</td>
</tr>
<tr>
<td>IG202Z</td>
<td>Extended Internship Programme*</td>
<td>17 weeks</td>
</tr>
<tr>
<td><strong>Stage 3B</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP4540</td>
<td>Safety Assessment, GMP and Cosmetic Regulations</td>
<td>60</td>
</tr>
<tr>
<td>IG202Y</td>
<td>Extended Internship Programme*</td>
<td>22 weeks</td>
</tr>
<tr>
<td>CP4541</td>
<td>The Art of Perfumery</td>
<td>60</td>
</tr>
<tr>
<td><strong>Stage 4</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP4542</td>
<td>Safety Assessment, GMP and Cosmetic Regulations</td>
<td>60</td>
</tr>
<tr>
<td>IG202Y</td>
<td>Extended Internship Programme*</td>
<td>22 weeks</td>
</tr>
<tr>
<td>CP4543</td>
<td>The Art of Perfumery</td>
<td>60</td>
</tr>
</tbody>
</table>

* Module covered in two semesters.
The Advanced Instrumental Analysis Laboratory provides students with practical experience in several instrumental techniques, e.g. UV-visible and atomic absorption spectrometry, ICP-OES, fluorimetry, potentiometry, liquid and gas chromatography, LC-MS and GC-MS.

The Analytical & Forensic Chemistry Laboratory provides students with laboratory skills in forensic chemistry. The laboratory is equipped with HPLC, FTIR, Electrophorises, IR and GC.

The Applied Chemistry Laboratory is equipped with basic instruments and equipment suitable for teaching basic chemical, physical chemistry and analytical chemistry. Quantitative and qualitative analyses and preparations are carried out in this laboratory.

The Biologics Corridor consists of a series of laboratories that include a clean room for professional training and hands-on practice for bioprocessing as well as core life sciences techniques. The laboratories are equipped with an extensive and state-of-the-art line-up of bioprocessing equipment (plasma-sterilised and single-use bioreactors, chromatography systems, bioanalysers) as well as core life science equipment (confocal microscope, inverted microscope, fluorescence microscope, flow cytometry, gel documentation systems, etc) to support research and development.

The Biotransformation Laboratory is a place where various types of food fermentation processes are explored and studied with the aid of state-of-the-art equipment. The laboratory also houses an array of lactic acid bacteria and yeast which act as workhorses for various food fermentation processes. Current research work carried out in the laboratory includes the biocconversion of food byproducts into utilisable food ingredients and products. Other upcoming research work include the study of micro-bio-microbe interactions for the optimisation of food fermentation processes and the bio-formation of aroma compounds by yeast species.

The Dough and Roll Studio provides facilities for food product development and sensory evaluation. Using the experimental kitchen with bakery capability and sensory evaluation booths the Energy & Chemicals Training Centre is an integrated training hub comprises of a suite of chemical engineering laboratories, which houses key unit operations typically found in the Energy and Chemicals sector, including oil movement and storage, batch and continuous processes, environmental and waste management. Learners will experience authentic hands-on training in process operations and automation as well as troubleshooting and optimisation. The facilities provide opportunities to learners to combine chemical engineering concepts and predictive capabilities of fundamental physical sciences with the aim of designing and controlling industrial engineering applications, as well as to innovate chemical products by applying chemical engineering principles and design thinking.

The Engineering Applications Laboratory houses a wide range of process equipment for students to learn basic chemical engineering principles. The equipment includes thermodynamics teaching kits, a grinding and sieving system, a material balance teaching unit and analytical equipment.

The Food Analysis Laboratory provides facilities for students to gain experience in the fundamentals of food chemistry and analysis. The laboratory is equipped with a Kjeldhal digester. Diamethyl protein analyser, fat analysers and water activity meter. Equipment include high performance liquid chromatograph, inductively coupled plasma emission spectrometer, gas chromatograph, bomb calorimeter and spectrophotometers.

The Food Creation Laboratory has facilities for development, evaluation and application of food ingredients and flavours such as beverages, confectioneries, culinary and dairy products. Equipment include texture analyser, rapid viscosity analyser for starch and dough analysis, water activity meter, colorimeter, viscometer and vapour pressure osmometer.

The Food Processing Laboratory houses a wide range of food processing and packaging equipment including state-of-the-art pilot plant facilities. These include spray dryer, fluidised-bed dryer, encapsulator, rotary evaporator, pasteuriser and steriliser, falling film evaporator, homogeniser, water vapour transmission rate detector, modified atmosphere packaging machine and headspace analyser. Students will gain hands-on training experience in food processing, preservation and packaging.

The General Chemistry Laboratory is equipped with basic instruments and equipment suitable for teaching the basic principles of organic chemistry. Simple organic synthesis and functional group determinations are performed in this laboratory.

The Green Chemistry Laboratory has a range of facilities to measure levels of pollutants in air and water. It houses a full-range of equipment for testing and characterisation of petroleum products, e.g. gas chromatograph, viscometers, aniline point apparatus.

The Industrial Unit Operations Laboratory houses a wide range of well-instrumented pilot plants to provide hands-on experience in equipment set-up, shutdown and operation of separation processes. A real life operation environment is created with the pilot unit multistage bubble-cap distillation pilot plant, equipped with Distributed Control System in the control room. Other pilot plants include the climbing film evaporator, various heat exchangers (shell-and-tube, double-pipe, plate), crystalliser, drying unit, pulsed liquid-liquid extraction unit etc. The laboratory also houses various pump pilot plant, real size training pump, valves as well as liquid mixing pilot plant. Students study the operating characteristics and power requirement for the different pumps and the effect of different impeller designs on mixing efficiency as well as gain good understanding on the anatomy of pumps and valves. The pilot plants are designed to support the integrated curriculum which fuses engineering concepts, experiences, real-life knowledge and problem-solving skills to make an effective learning experience for students.

The Materials Performance Centre houses four specially designed state-of-the-art laboratories to provide authentic and skill-based training in applied materials science. The Materials Innovation & Design Room provides a conducive space for students to brainstorm and conceptually design and innovative materials. It has 3D printers and other tools to support research and development. The Materials Formulation Laboratory has a range of facilities for the formulation of coatings, elastomers and other polymeric materials. The Materials Prototyping Laboratory houses a wide range of equipment for the processing of polymers and elastomers e.g. injection moulding, multi-layer film extrusion, blown-film extrusion, twin-screw compounding, compression moulding. The Materials Diagnostic Laboratory is well equipped for testing and characterisation of materials using tensile tester, differential scanning calorimeter, fourier transform infrared (FTIR) spectrometer, scanning electron microscope and light scattering nanoparticle measurement.

The Medical Technology Suite is divided into several specialised laboratories, providing support to practical and research of various disciplines in medical laboratory science and biomedical research including clinical chemistry, haematology, histopathology, immunology and molecular diagnostics. Equipment include genetic analyser, droplet digital PCR system, flow cytometer, conventional and real-time thermal cyclers, capillary and gel electrophoresis systems, microplate reader, automated analyser for whole blood and serum, double-beam spectrophotometer, tissue processor, microtome, cryostat, bright field (single and multi-headed) and fluorescence microscopes.

The Microbiology Laboratory provides facilities to conduct practical and research in microbiology, genomics and proteomics. The laboratory is equipped for students to carry out microscopic examination of cells, sterility testing, microbial enumeration and microbial identification by rapid biochemical techniques and molecular methods like polymerase chain reaction and protein analysis.

Equipment include biosafety cabinets, static and shake incubators, colony counters, real-time thermal cyclers, DNA and protein gel electrophoresis sets with gel documentation systems and MALDI-TOF Mass Spectrometer.

The Nutrition, Health & Wellness Centre supports hands-on teaching for the DNHW course. It has a wide range of equipment which are housed in the Exercise Physiology, Physical Fitness and the Health Food Preparation/Demonstration Laboratories within the Centre.

The Organic Chemistry Laboratory is where Year 2 students carry out practical work on organic synthesis and reaction mechanisms.

The Perfumery & Cosmetic Science Centre provides facilities for the development and application of fragrances and personal care products in the chemical, cosmetics and toiletries industry. It is equipped with rheometers, viscometers, homogenisers, microfluidic, microscopes, tensile instrument, UV-vis spectrophotometer, skin investigation systems, sun protection diagnostic instrument, multidimensional GC-MS, centrifuge, penetrometer, humidity chamber, density and refractive index measuring instrument, etc.

The Pharmaceutical Chemistry Laboratory provides facilities for students to carry out practicals on drug synthesis and analysis of active pharmaceutical ingredients and finished dosage forms. Instruments available include SOTAX AT7 dissolution testing unit, Pharmatest machine and Silverstone mixer.

The Pharmaceutical Technology Laboratory houses a range of secondary pharmaceutical manufacturing pilot plants to provide hands-on experience in the production of therapeutic drugs.

The Process ++ Laboratory hosts reaction engineering and thermodynamics practicals, and is equipped with various chemical reactor pilot plants such as the jacketed chemical reactor featuring PC- based control system, continuous stirred tank reactor (CSTR), a batch reactor and a plug flow tubular reactor (PFTR).

The Vision Science Laboratory incorporates state-of-the-art training facilities for the DOPT course which provides a fresh approach to clinical teaching. It includes the Clinical Optometry Learning Centre and the Ophthalmic Dispensing Learning Centre.

The Materials Prototyping Laboratory houses multi-functional state-of-the-art pilot plant facilities. These include encapsulator, rotary evaporator, pasteuriser and steriliser, falling film evaporator, homogeniser, water vapour transmission rate detector, modified atmosphere SP Optometry Centre serves as a clinical training facility for Optometry students. There are 15 fully-equipped consulting and special examination rooms. The facility offers colour vision and stereoscopic tests and is equipped with tonometers and advanced ocular diagnostic instruments. Different types of contact lens trial sets and solutions are available for student use in clinical work. The centre is open to the public for vision assessments and eye examinations.

The Vision Science Laboratory incorporates state-of-the-art training facilities for the DOPT course which provides a fresh approach to clinical teaching. It includes the Clinical Optometry Learning Centre and the Ophthalmic Dispensing Learning Centre.

The Nutrition, Health & Wellness Centre supports hands-on teaching for the DNHW course. It has a wide range of equipment which are housed in the Exercise Physiology, Physical Fitness and the Health Food Preparation/Demonstration Laboratories within the Centre.

The Organic Chemistry Laboratory is where Year 2 students carry out practical work on organic synthesis and reaction mechanisms.

The Perfumery & Cosmetic Science Centre provides facilities for the development and application of fragrances and personal care products in the chemical, cosmetics and toiletries industry. It is equipped with rheometers, viscometers, homogenisers, microfluidic, microscopes, tensile instrument, UV-vis spectrophotometer, skin investigation systems, sun protection diagnostic instrument, multidimensional GC-MS, centrifuge, penetrometer, humidity chamber, density and refractive index measuring instrument, etc.

The Pharmaceutical Chemistry Laboratory provides facilities for students to carry out practicals on drug synthesis and analysis of active pharmaceutical ingredients and finished dosage forms. Instruments available include SOTAX AT7 dissolution testing unit, Pharmatest machine and Silverstone mixer.

The Pharmaceutical Technology Laboratory houses a range of secondary pharmaceutical manufacturing pilot plants to provide hands-on experience in the production of therapeutic drugs.

The Process ++ Laboratory hosts reaction engineering and thermodynamics practicals, and is equipped with various chemical reactor pilot plants such as the jacketed chemical reactor featuring PC-based control system, continuous stirred tank reactor (CSTR), a batch reactor and a plug flow tubular reactor (PFTR).
The School of Computing (SoC) aims to be a significant contributor to Singapore’s Digital Transformation journey by being the source of the next generation of digital champions. To prepare aspiring IT professionals for the challenges ahead, SoC has put in place different avenues to nurture and develop students in a holistic manner. This includes a suite of comprehensive IT programmes that lays a strong foundation for building deep skills in frontier technologies, the use of innovative teaching approaches and inspiring learning spaces, and immersive real world learning experiences.

Moving ahead, the school believes in preparing students to be future technology leaders as part of Singapore’s Smart Nation Vision.
IMMERSIVE REAL WORLD LEARNING
Pit your skills against the best in competitions, join meet-ups to find like-minded fellows and earn industry certifications.
Get real-life work experience through our 22 weeks of internship and develop solutions to real-world problems through SP’s SMART Campus, Data Science and Analytics Centre, Immersive Experience Technology Centre, and more.
Come. Journey with us. Turn your Dreams into Reality!

EXCLUSIVE SCHOLARSHIP/ FINANCIAL ASSISTANCE
Scholarships are available for students who demonstrate good performance and aptitude in their studies. Interest-free study loans and grants are also available to those in need.

EXPERIENCED AND NURTURING LECTURERS
Our lecturers are highly qualified professionals with industry or government work experience spanning information systems, data science and analytic; and infocomm security. They stay current with the latest technological trends and employment needs of the industries through consultancy, R&D projects, industrial attachments and staff development programmes.
Award-winning student projects are made possible by the sheer dedication and commitment from our lecturers, many of whom devote countless hours in mentoring our students.

FULL-TIME DIPLOMA COURSES
- Common Infocom Technology Programme
- Diploma in Infocom Security Management
- Diploma in Information Technology

PART-TIME DIPLOMA COURSES
- Diploma (Conversion) in Web & Programming
- Diploma in Infocom and Digital Media (Cyber Security)
- Specialist Diploma in Cyber Security Management
- Specialist Diploma in Cyber Security (Earn and Learn Programme)
- Specialist Diploma in Data Science
- Specialist Diploma in Data Science (Data Analytics)
- Specialist Diploma in Data Science (Predictive Analytics)
- Specialist Diploma in Data Science (Artificial Intelligence)
- Specialist Diploma in Data Science (Big Data & Streaming Analytics)
- Specialist Diploma in Digital Marketing and Analytics
- Specialist Diploma in Full Stack Web Development
- Specialist Diploma in Mobile Apps Development

On top of offering diploma courses in Infocom Technology, we also offer our expertise and experience through consultancy services to the industry. We establish strategic partnerships with the industry players in joint projects and offer continuing education courses to encourage life-long learning.

Are you passionate about Information Technology (IT) but undecided about which IT course to take?
The Common Infocom Technology Programme (CITP) is designed to help you make an informed choice.
The common first semester will lay the foundation for programming and computing for both Diploma in Infocom Security Management (DISM) and Diploma in Information Technology (DIT) courses.
This program will allow you to have more time to explore your interests in the first semester and make an informed decision on preferred IT-related course to pursue later.
Through the Education & Career Guidance activities, you will then learn to develop your portfolios and gain insights into the respective job roles and industries in the IT sectors.
At the end of the Year 1 Semester I you will be able to make an informed choice in selecting one of the two IT courses that you wish to pursue:
- S69 Diploma in Information Technology (DIT)
- S54 Diploma in Infocom Security Management (DISM)
The programme offers:
- fundamental IT modules to give you an insight into what interests you.
- a comprehensive exposure to various areas of IT through the infocomm professional seminars.
- IT career guidance through the Education and Career Guidance module.

The common first semester will lay the foundation for programming and computing for both DISM and DIT courses.

Through the module of Education and Career Guidance 1, students will learn to develop their portfolios and gain insights into the respective job roles and industries.

PROSPECTS
To be streamed to either the DISM or DIT course after one semester in SP.

FURTHER STUDIES
You can pursue an IT degree programme at a local or foreign university.

COURSE MODULES

<table>
<thead>
<tr>
<th>FULL-TIME</th>
<th>FIRST YEAR (FIRST SEMESTER)</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC0855</td>
<td>Communicating for Project (Proposal) Effectiveness</td>
<td>30</td>
</tr>
<tr>
<td>MS0905</td>
<td>Mathematics</td>
<td>60</td>
</tr>
<tr>
<td>SP108B</td>
<td>Education and Career Guidance 1</td>
<td>30</td>
</tr>
<tr>
<td>ST0501</td>
<td>Front-End Web Development</td>
<td>75</td>
</tr>
<tr>
<td>ST2413</td>
<td>Fundamentals of Computing</td>
<td>60</td>
</tr>
<tr>
<td>ST0502</td>
<td>Fundamentals of Programming</td>
<td>90</td>
</tr>
<tr>
<td>LC0860</td>
<td>Critical &amp; Analytical Thinking</td>
<td>30</td>
</tr>
</tbody>
</table>

With the proliferation of computers and mobile devices, the need for security is rapidly gaining significance in today’s world. Where important confidential information and critical infrastructure face risks from hacking, loss of data, unauthorized access to computer systems, malware, social engineering, infrastructure destruction, cyberterrorism, system and application exploits are also threatening individuals and corporations daily. If these threats are not mitigated, there would be disastrous consequences.

Managing these Infocomm Security threats is critical and this has necessitated the growth of Singapore’s pool of Infocomm Security Management experts - one of the key areas of focus in the latest National Cyber Security Masterplan.

WHY CHOOSE DISM
Being a DISM student gives one the competitive edge both future studies and career. Students can look forward to:
- Simulated-Practice Learning Environment
- Comprehensive training in Infocomm Security Management
- Recognition from the industry through professional Infocomm Security certifications

SIMULATED-PRACTICE LEARNING ENVIRONMENT
To give students an experience of being a real-life Infocomm Security Management professional, there is a learning space dedicated to them – Cyber Wargame Centre. The Cyber Wargame Centre allows the creation of different types of scenarios for students to learn hacking techniques, setting up of network defences and investigating computer crime scenes.

Students will be expected to put their skills to the test against their classmates in regular cyber war-game competitions. The learning will start from a simple network setup and then progress on to a bigger and more complex environment. This learning space encourages students to creatively use their acquired knowledge and skills in participating in cyber attack exercises, setting up defences and investigating cyber security scenarios.

For a list of electives offered, please visit www.sp.edu.sg
COMPREHENSIVE TRAINING IN INFOMCOM SECURITY MANAGEMENT

The DISM curriculum offers a comprehensive training in the field of Infocomm Security Management. Students will acquire skills and knowledge to manage secure threats with modules such as Ethical Hacking and Defences, Applied Cryptography, Secure Coding, Digital Forensics & Investigation and Computer Law & Investigation. Students will also learn the techniques used by hackers to penetrate computer systems and also those by security professionals to defend against such attacks.

GAIN RECOGNITION BY THE INDUSTRY THROUGH PROFESSIONAL SECURITY CERTIFICATIONS

To help students gain industry recognition, the DISM course provides opportunities for them to embark on external industry recognised certification programmes like ThinkSECURE Organisational Systems Security Analyst (OSSA), Organisational Systems Wireless Auditor (OSWA), EC-Council Certified Ethical Hacker (CDE) and Computer Hacking Forensic Investigator (CHFI).

There are also opportunities to acquire other IT-related certifications like the Proxim Software Developer Exam (SDE-Java). Students can pursue these additional certifications during their progressive years of study.

EXCITING RANGE OF ACTIVITIES BEYOND THE CURRICULUM

Students will have a chance to plan and organise events like ISA Day (Information Systems Audit and Control Association), and the School Cyber Wellness talks to promote greater awareness of Infocomm Security among the community. Students can also look forward to embarking on field trips to relevant organisations, going on overseas trips, competing in Infocomm Security competitions and participating in peer sharing sessions in our Special Interest Groups.

INDUSTRY AND INFOMCOM SECURITY EXPERIENCE FOR FINAL YEAR PROJECTS AND INTERNSHIP

In their final year, students have the opportunity to consolidate the knowledge and polish the skills they have acquired during their DISM course by working on a Final-Year Project (FYP) and undergoing a 22-week Internship Programme. Students can be posted to research organisations such as DSO National Laboratories or A*STAR, government agencies like IMDA, IT security consultancy, and in any organisation that requires IT Security Management services.

FURTHER EDUCATION

Students will have ample opportunities to further their studies both locally and overseas with generous advanced standings. Besides the local universities, students can also embark on various undergraduate courses in Infocomm Security, Digital Systems Security, Computer Forensics and Security Management with reputable foreign universities in Australia, UK and the United States.

COURSE STRUCTURE

To be awarded the Diploma in Infocomm Security Management, a student must pass all the core modules and required elective modules.

<table>
<thead>
<tr>
<th>COURSE MODULES</th>
<th>FIRST YEAR</th>
<th>SECOND YEAR</th>
<th>THIRD YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FULL-TIME HOURS</td>
<td>FULL-TIME HOURS</td>
<td>FULL-TIME HOURS</td>
</tr>
<tr>
<td>LC0855 Communicating for Project (Proposal) Writing</td>
<td>30</td>
<td>LC0857 Communicating for Professional Effectiveness</td>
<td>30</td>
</tr>
<tr>
<td>LC0860 Critical &amp; Analytical Thinking</td>
<td>30</td>
<td>LC8062 Design Thinking for Social Innovation</td>
<td>30</td>
</tr>
<tr>
<td>LC0861 Narrative Thinking</td>
<td>30</td>
<td>LC1053 Back-End Web Development</td>
<td>90</td>
</tr>
<tr>
<td>MS0105 Mathematics</td>
<td>60</td>
<td>ST2504 Digital Forensics and Investigation</td>
<td>60</td>
</tr>
<tr>
<td>ST0241 Front-End Web Development</td>
<td>75</td>
<td>ST2505 Secure Coding</td>
<td>60</td>
</tr>
<tr>
<td>ST2413 Fundamentals of Computing</td>
<td>60</td>
<td>ST2502 Ethical Hacking and Defences</td>
<td>8SB</td>
</tr>
<tr>
<td>ST0502 Programming and Engineering</td>
<td>90</td>
<td>ST2430 Security Policy and Incident Management</td>
<td>60</td>
</tr>
<tr>
<td>ST2422 Linux Administration and Security</td>
<td>60</td>
<td>ST2430 Securing Microsoft Windows</td>
<td>75</td>
</tr>
<tr>
<td>ST0104 Infocomm Security</td>
<td>60</td>
<td>SP1009A Education and Career Guidance 2</td>
<td>30</td>
</tr>
<tr>
<td>ST0105 Network Fundamentals</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ST2481 Programming in Python and C</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ST2502 Computer Law and Investigation</td>
<td>45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SP1088 Education and Career Guidance 1</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ST2504 Applied Cryptography</td>
<td>60</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The IMDA's Annual Infocomm Manpower survey continues to show a steady increase in demand for infocomm talent with a broad spectrum of infocomm job vacancies available. The Infocomm Media Industry Transformation Map (ITM) has also identified four frontier technologies that will propel Singapore's growth as a Digital Economy: (1) Cybersecurity, (2) AI & Data Science, (3) Internet of Things and (4) Immersive Media.

The Diploma in Information Technology (DIT) is positioned to focus on Software & Applications development and AI & Data Science with a common baseline foundation in Full Stack Web-Mobile Development. Students will be equipped with a strong foundation not only in Infocomm Technology, but in problem-solving and communication skills as well.

DIT is a three-year full-time programme. The curriculum of the first semester in year 1 shares a common structure, followed by specialisation in the second semester onwards, either in the Software & Applications, Data Science & Digital Analytics. Regardless of the specialisation in DIT course, graduates can take on job roles such as Applications Developer, Systems Analyst, IT Consulting Analysts and Business Analyst. The other job roles suitable for DIT graduates, depending on their specialisation, are UI Designer, UX Designer, Data Engineer, Data Analyst and Digital Marketing Executive.

SOFTWARE & APPLICATIONS (SA) SPECIALISATION

Infocomm is a vital enabler that transforms businesses. The Software & Applications (SA) specialisation equips students with the technical competency to lead, design and develop IT solutions that enable companies to become more competitive in the global arena through various platforms such as cloud, web and mobile devices.

In the SA Specialisation, students have the further flexibility in choosing their minor specialisation from one of the following tracks:
- The Software Development Specialist minor specialisation provides the technical depth in software design and development
- The User Experience Designer minor specialisation offers modules to enhance students’ abilities to design enjoyable, pleasurable and aesthetically pleasing applications. Interaction technologies are evolving to match the user expectation of a more seamless, intuitive and immersive user experience.

DATA SCIENCE & DIGITAL ANALYTICS (DSDA) SPECIALISATION

Today, more and more organizations are opening up their doors to big data and unlocking its power. There is a strong demand in the IT professionals who can analyze actionable insights out of gigabytes of data using cutting-edge technology and software. The Data Science & Digital Analytics Specialization builds the competency to explore data to create data visualisation that provides insights for business decisions. It honed the skills to solve problems using statistical knowledge, cognitive services and machine learning.

Singapore Polytechnic Prospectus 2019/20
TRAINING OPPORTUNITIES
Beyond the classroom, DIT students get different training opportunities locally or overseas, either with our industry partners, or renowned Institutes of Higher Learning (IHL).

Students get to select areas in demand by industry, such as Software Development, User Experience Design and Data Science and Digital Analytics.

DIT students have also ventured beyond the classroom learning. For example, with the Microsoft Student Partners (MSP), students learn to become technology leaders in the campus, while meeting new people and becoming game changers of the future. Moreover, DIT students are also encouraged to propose and innovate their own projects. Some of the self-proposed projects went on to win at competitions, such as the SiTF Awards.

COURSE MODULES
Some of the self-proposed projects went on to win at competitions, such as the SiTF Awards.

Students also get to gain a head start for further studies with the Advanced Math Programme that prepares them for local university programmes, or earn Advance Credits for DigiPen Singapore, or gain exposure with Singapore Management University (SMU) all of these while studying in DIT at SP.

CAREER PROSPECTS
As a DIT graduate, students get to choose from a variety of career options

*_Analyst Programmer_  
* Applications Developer  
* Business Analyst  
* Data Analyst / Engineer  
* Digital Marketing Executive  
* Graphics Programmer  
* Information Systems Officer  
* IT Consulting Analysts  
* IT Support Personnel  
* Software Engineer  
* Systems Analyst  
* UX Designer  
* UI Designer  
* Web Developer

FURTHER EDUCATION
Students can look forward to pursuing their further education at local or foreign universities, with some granting direct entry into second or third year of study in relevant undergraduate degree courses in countries such as in Australia and the United Kingdom.

With relevant courses locally at NUS, NTU, SIT, SUFT, and SMU, students will be spoilt for choice.

COURSE STRUCTURE
DT is a 3-year full-time course. The first semester curriculum is common to all students, providing a solid foundation in core IT knowledge, effective communication skills and life-skills. From second semester onwards, students get to specialise in either the Software & Applications (SA) or Data Science & Digital Analytics (DSDA) Specialisations. In the SA Option, students get to choose Minor Specialisation Modules (Software Development Specialist or User Experience Design), for their track of study. Students gain real work experience during a 22-week internship programme in their final year of study.

Students get to gain a head start for further studies with the Advanced Math Programme that prepares them for local university programmes, or earn Advance Credits for DigiPen Singapore, or gain exposure with Singapore Management University (SMU) all of these while studying in DIT at SP.

SOCIAL INTERACTIONS
Beyond the classroom, DIT students get to specialise in either the Software & Applications (SA) or Data Science & Digital Analytics (DSDA) Specialisations. In the SA Option, students get to choose Minor Specialisation Modules (Software Development Specialist or User Experience Design), for their track of study. Students gain real work experience during a 22-week internship programme in their final year of study.

Electives
The SP elective framework offers students options to pursue their passion and/or meet different career needs, and is an integral part of the holistic education we seek to provide to our students.

The learning experiences of this elective framework help students in their development as self-directed, versatile, life-long learners, which are essential in today’s volatile and changing societal as well as occupational landscape.

For a list of electives offered, please visit www.sp.edu.sg

Singapore Polytechnic Prospectus 2019/20
**Diploma in Aerospace Electronics (DASE)**

The Diploma in Aerospace Electronics (DASE) course aims to provide students with a broad-based engineering foundation to develop Maintenance Repair & Overhaul (MRO) solutions to support Singapore as a smart aviation hub.

With the official industry support from ST Engineering Aerospace as our SARP67 B1 & B2 training partner, this course will provide you an advantage in the aerospace MRO industry as well as to further your studies in local and overseas universities.

For those who aspire to be an aircraft pilot and/or CAAS certified drone pilot, this course offers you various electives to pursue your passion and your pilot dream.

**This course offers:**
- State-of-the-art aircraft training facilities at AEROHUB with four aircraft (Hawker 125-700A, King Air B90, A4SU Super Skyhawk and Bell UH-1H Helicopter) and two full-size A320 cockpit flight simulators to provide authentic aircraft training experience.
- A curriculum that is aligned to the “Singapore Airworthiness Requirements Part 66” (SAR 66) specified by the Civil Aviation Authority of Singapore (CAAS) to prepare you for a career as a Licensed Aircraft Maintenance Engineer.
- Opportunities to pursue a Private Pilot License (PPL) at Singapore Youth Flying Club (SYFC).
- Electives in the areas such as Commercial Pilot Theory, Unmanned Aircraft Flying and Drone Technologies, Flight Technical Management and Aviation Management.
- An exciting 2-week overseas exchange programme (Learning Exprress) where you will use your skills and knowledge to improve lives in the real world.
- 22-week internship opportunities at reputable local aerospace companies such as Airbus, Rolls-Royce, SIAEC, ST Engineering Aerospace, Thales, CAAS, Changi Airport Group.

**Opportunities to join the premier Engineering Academy programme and take part in local and overseas UAV competitions such as the Singapore Autonomous Underwater Vehicle Challenge (SAFMC).**

**A curriculum that follows the COID (Conceive-Design-Implement-Operate framework which is adopted in top universities such as MIT.**

**A proven track record of DASE graduates admitted to local and overseas universities such as NUS, NTU, SUTD, SIT, SUSS, Embry-Riddle Aeronautical University (USA), Imperial College (UK) and University of New South Wales (Australia).**

---

**Diploma Courses**

- Diploma in Aerospace Electronics (DASE)
- Diploma in Computer Engineering (DCPE)
- Diploma in Electrical and Electronic Engineering (DEEE)
- Diploma in Engineering with Business (DEB) (Jointly offered with the SP Business School and the School of Mechanical & Aeronautical Engineering)
- Common Engineering Programme (CDEP) (Jointly offered with the School of Mechanical & Aeronautical Engineering)

**Practical Training**

To provide students and staff at the School of EEE with access to some of the best and most up-to-date facilities for training and development with numerous general-purpose and specialised laboratories.

The school is also active in R&D activities in technological areas such as Digital Signal Processing, Robotics and Intelligent Control. The various technology hubs that have been set up are:

- Robotics, Automation & Control Hub
- Power & Autonomous Electric Vehicle Hub
- Semiconductor Hub
- Biomedical Engineering Hub
- Energy & Rapid Transit Hub
- IoT and Smart Solutions Hub
- Aerospace Engineering Hub
- Biomedical Engineering Hub
- Renewable Energy, Industrial Automation & Control Technology
- UAV technologies, Wafer fabrication and IC Design. The various technological areas such as Digital Signal Processing, Robotics and Intelligent Control. The various technology hubs that have been set up are:

Students of the school have consistently performed outstandingly at both national and international competitions and awards such as the WorldSkills Competition, Lee Hsiong Loong Interactive Digital Media Smart Nation Award, IES Innovation Challenge, Singapore Amazing Flying Machine Competition, National Assistive & Rehabilitation Technologies Student Innovation Challenge, Singapore Autonomous Underwater Vehicle Challenge and Tan Kah Kee Young Inventor Award, attesting to the high quality of training that the School of EEE provides.

**Engineering Academy Programme**

- Diploma in Aerospace Electronics (from Year 2, Semester 1)
- Diploma in Computer Engineering (from Year 2, Semester 1)
- Diploma in Engineering with Business (from Year 2, Semester 1)
- Diploma in Electrical and Electronic Engineering (from Year 2, Semester 1)

In the Engineering Academy Programme, you will be exposed to an exciting and intensive experience where you learn to develop workable solutions to real world problems. That means figuring out the right questions to ask, taking charge of your own learning and working through uncertainty. You will also collaborate with peers from other Engineering diplomas, learn about Design and Business, be able to prototype quickly and have opportunities to work closely with industry and university partners.

Beyond the core curriculum, you have a choice of electives from 2nd year onwards of your study. Unlike required core modules, electives are classes you choose based on your interests. Electives offered cover a wide variety of topics like artificial intelligence, advanced manufacturing, renewable energy, drone piloting, etc.

With the Diploma in Aerospace Electronics (DASE), Diploma in Computer Engineering (DCPE) and Diploma in Electrical & Electronic Engineering (DEEE) having a common 1st year curriculum, students can apply for course transfer to the 2nd year of DASE/DCPE/DEEE at the end of the 1st year of studies. Application for course transfer will be assessed based on merit and is subject to available vacancies.

---

**Common Engineering Programme (CDEP)**

- Diploma in Aerospace Electronics (DASE)
- Diploma in Computer Engineering (DCPE)
- Diploma in Electrical & Electronic Engineering (DEEE)
- Diploma in Engineering with Business (DEBE) (Jointly offered with the School of Mechanical & Aeronautical Engineering)
- Common Engineering Programme (CDEP) (Jointly offered with the School of Mechanical & Aeronautical Engineering)

**Practical Training**

- Students and staff at the School of EEE have access to some of the best and most up-to-date facilities for training and development with numerous general-purpose and specialised laboratories.

The school is also active in R&D activities in technological areas such as Digital Signal Processing, Robotics and Intelligent Control. The various technology hubs that have been set up are:

- Robotics, Automation & Control Hub
- Power & Autonomous Electric Vehicle Hub
- Semiconductor Hub
- Biomedical Engineering Hub
- Energy & Rapid Transit Hub
- IoT and Smart Solutions Hub
- Aerospace Engineering Hub
- Biomedical Engineering Hub
- Renewable Energy, Industrial Automation & Control Technology
- UAV technologies, Wafer fabrication and IC Design. The various technological areas such as Digital Signal Processing, Robotics and Intelligent Control. The various technology hubs that have been set up are:

Students of the school have consistently performed outstandingly at both national and international competitions and awards such as the WorldSkills Competition, Lee Hsiong Loong Interactive Digital Media Smart Nation Award, IES Innovation Challenge, Singapore Amazing Flying Machine Competition, National Assistive & Rehabilitation Technologies Student Innovation Challenge, Singapore Autonomous Underwater Vehicle Challenge and Tan Kah Kee Young Inventor Award, attesting to the high quality of training that the School of EEE provides.

**Engineering Academy Programme**

- Diploma in Aerospace Electronics (from Year 2, Semester 1)
- Diploma in Computer Engineering (from Year 2, Semester 1)
- Diploma in Engineering with Business (from Year 2, Semester 1)
- Diploma in Electrical and Electronic Engineering (from Year 2, Semester 1)

In the Engineering Academy Programme, you will be exposed to an exciting and intensive experience where you learn to develop workable solutions to real world problems. That means figuring out the right questions to ask, taking charge of your own learning and working through uncertainty. You will also collaborate with peers from other Engineering diplomas, learn about Design and Business, be able to prototype quickly and have opportunities to work closely with industry and university partners.

Beyond the core curriculum, you have a choice of electives from 2nd year onwards of your study. Unlike required core modules, electives are classes you choose based on your interests. Electives offered cover a wide variety of topics like artificial intelligence, advanced manufacturing, renewable energy, drone piloting, etc.

With the Diploma in Aerospace Electronics (DASE), Diploma in Computer Engineering (DCPE) and Diploma in Electrical & Electronic Engineering (DEEE) having a common 1st year curriculum, students can apply for course transfer to the 2nd year of DASE/DCPE/DEEE at the end of the 1st year of studies. Application for course transfer will be assessed based on merit and is subject to available vacancies.

---

**Diploma in Aerospace Electronics (DASE)**

The Diploma in Aerospace Electronics (DASE) course aims to provide students with a broad-based engineering foundation to develop Maintenance Repair & Overhaul (MRO) solutions to support Singapore as a smart aviation hub.

With the official industry support from ST Engineering Aerospace as our SARP67 B1 & B2 training partner, this course will provide you an advantage in the aerospace MRO industry as well as to further your studies in local and overseas universities.

For those who aspire to be an aircraft pilot and/or CAAS certified drone pilot, this course offers you various electives to pursue your passion and your pilot dream.

This course offers:

- State-of-the-art aircraft training facilities at AEROHUB with four aircraft (Hawker 125-700A, King Air B90, A4SU Super Skyhawk and Bell UH-1H Helicopter) and two full-size A320 cockpit flight simulators to provide authentic aircraft training experience.
- A curriculum that is aligned to the “Singapore Airworthiness Requirements Part 66” (SAR 66) specified by the Civil Aviation Authority of Singapore (CAAS) to prepare you for a career as a Licensed Aircraft Maintenance Engineer.
- Opportunity to pursue a Private Pilot License (PPL) at Singapore Youth Flying Club (SYFC).
- Electives in the areas such as Commercial Pilot Theory, Unmanned Aircraft Flying and Drone Technologies, Flight Technical Management and Aviation Management.
- An exciting 2-week overseas exchange programme (Learning Express) where you will use your skills and knowledge to improve lives in the real world.
- 22-week internship opportunities at reputable local aerospace companies such as Airbus, Rolls-Royce, SIAEC, ST Engineering Aerospace, Thales, CAAS, Changi Airport Group.
- Opportunities to join the premier Engineering Academy programme and take part in local and overseas UAV competitions such as the Singapore Autonomous Underwater Vehicle Challenge (SAFMC).
- A curriculum that follows the COID (Conceive-Design-Implement-Operate framework which is adopted in top universities such as MIT.
- A proven track record of DASE graduates admitted to local and overseas universities such as NUS, NTU, SUTD, SIT, SUSS, Embry-Riddle Aeronautical University (USA), Imperial College (UK) and University of New South Wales (Australia).**
**ENGINEERING ACADEMY PROGRAMME**

Are you looking to challenge yourself? The Engineering Academy Programme is a new pathway available to a limited number of engineering students from the School of Mechanical & Aeronautical Engineering (MAE) and School of Electrical & Electronic Engineering (EEE).

Outstanding students are eligible for the Engineering Academy Programme in Year 2. Under this programme, students will go through an alternative curriculum designed to develop them to be engineers with creative confidence, comfortable with uncertainty, a growth mindset and are self-driven learners.

If you are selected for the Engineering Academy Programme, you will be exposed to an exciting and intensive environment where you learn to build workable solutions to real world problems. That means, figuring out the right questions to ask, taking charge of your own learning, working through uncertainty and being comfortable with having to try and try again. At the Engineering Academy Programme, you will be placed in an environment where innovation happens. You will collaborate with peers from other Engineering disciplines, learn about Design and Business, prototype quickly and have access to an exciting and intensive experience.

The internship will expose students to aerospace industry. Besides the Engineering Academy Programme, students are able to choose from this course will be well-positioned for employment in aerospace companies and the Republic Singapore Air Force such as Air Force Engineer (Maintenance), Air Traffic Controller, Assistant Engineer (Training and Simulation Systems), Assistant Engineer (Unmanned Vehicle System Design), Assistant Aerospace Sales & Marketing Engineer, Assistant Systems Integrator (Avionics), Flight Operations Officer, Licensed Aircraft Maintenance Engineer, Planning Executive and Quality Assurance Engineer.

**COMMERICAL PILOT THEORY PROGRAMME**

During the three-year course, DASE students will have the chance to attend an elective on Commercial Pilot Theory. The course provides a comprehensive insight into Flight Planning, Aviation Navigation, Radio Aids, Flight Instruments, Theory and Practical of Meteorology and the experience of flying a flight simulator. Participants will be equipped with knowledge for a career in the aviation industry and will be ready to sit for the Civil Aviation Authority of Singapore’s (CAAS) theory examinations (Navigation Group) for the issue of Commercial Pilot’s License.

**ASSESSMENT**

Assessment during each year of the diploma course will be by means of in-course assessments, practical tests and semestral examinations.

**SCHOLARSHIPS**

Ample prestigious scholarships from SP and aerospace organisations are available for application by outstanding students.

**CAREER PROSPECTS**

With the development of Changi Airport Terminal 5 to anchor Singapore as the aviation hub of the region, and the growing demand of air travels around the world, Singapore aerospace industry is on track for healthy growth. Graduates from this course will be well-positioned for employment in aerospace companies and the Republic Singapore Air Force such as Air Force Engineer (Maintenance), Air Traffic Controller, Assistant Engineer (Training and Simulation Systems), Assistant Engineer (Unmanned Vehicle System Design), Assistant Aerospace Sales & Marketing Engineer, Assistant Systems Integrator (Avionics), Flight Operations Officer, Licensed Aircraft Maintenance Engineer, Planning Executive and Quality Assurance Officer (Aircraft Systems). During the three-year course, students will have the opportunities to sit for the Basic Examinations under the Singapore Airworthiness Requirements (SAR) 66 for licensing of Aircraft Maintenance Engineers conducted by the Civil Aviation Authority of Singapore (CAAS).

**FURTHER STUDIES**

You can gain advanced standing of up to two years of exemption in Aerospace Engineering, Electrical & Electronic Engineering or Computer Engineering degree courses in local and overseas universities such as NUS, NTU, SUTD, SIT, SUSS, Embry-Riddle Aeronautical University (USA), Imperial College (UK) and University of New South Wales (Australia).

The Singapore Institute of Technology (SIT) and University of Glasgow have accredited the DASE course for a two years exemption in their “Bachelor of Engineering (Honours) in Aerospace Systems” and “Bachelor of Engineering (Honours) in Aeronautical Engineering” degree programmes.

The Singapore University of Social Sciences (SUSS) offers DASE graduates an accelerated part-time training path leading to a Bachelor of Engineering Degree (Honours) in Aerospace Systems.

**ENGINEERING ACADEMY PROGRAMME OFFERINGS**

- **Planning Executive and Quality Assurance Engineer**
- **Licensed Aircraft Maintenance Engineer, (Avionics)**
- **Flight Operations Officer, Engineer**
- **Assistant Systems Integrator (Avionics)**
- **Assistant Aerospace Sales & Marketing Engineer**
- **Assistant Engineer (Training and Simulation Systems)**
- **Assistant Engineer (Unmanned Vehicle System Design)**
- **Assitant Aerospace Sales & Marketing Engineer**
- **Assistant Systems Integrator (Avionics)**
- **Flight Operations Officer, Engineer**
- **Licensed Aircraft Maintenance Engineer, Planning Executive and Quality Assurance Officer (AirCraft Systems)**
- **Commercial Pilot’s License**
- **Balance of Examinations**
- **Further Studies**

---

**COURSE MODULES**

<table>
<thead>
<tr>
<th>Module</th>
<th>First Year Hours</th>
<th>Second Year Hours</th>
<th>Third Year Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ET0053 Structured Programming</strong></td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ET0054 Computer Aided Design &amp; Drafting (CAD/3D)</strong></td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ET0033 Digital Electronics I</strong></td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ET0043 Digital Electronics II</strong></td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ET0006 Principles of Electrical &amp; Electronic Engineering I</strong></td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ET0007 Principles of Electrical &amp; Electronic Engineering II</strong></td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ET0011 Introduction to Engineering I</strong></td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ET0012 Introduction to Engineering II</strong></td>
<td>45</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>LC0034 Communicating for Personal and Team Effectiveness</strong></td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>LC0035 Communicating for Project Effectiveness (Report)</strong></td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>LC0036 Critical &amp; Analytical Thinking</strong></td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>LC0037 Critical &amp; Analytical Thinking</strong></td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MS4202 Basics Mathematics</strong></td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MS4201 Engineering Mathematics I</strong></td>
<td>60</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**SCHOLARSHIPS**

The SP elective framework offers students options to pursue their passion and/or meet different career needs, and is an integral part of the holistic education we seek to provide to our students. The learning experiences of this elective framework help students in their development as self-directed, versatile, life-long learners, which are essential in today’s volatile and changing societal as well as occupational landscapes.

For a list of electives offered, please visit [www.sp.edu.sg](http://www.sp.edu.sg).

---

**References**

The SP elective framework offers students options to pursue their passion and/or meet different career needs, and is an integral part of the holistic education we seek to provide to our students. The learning experiences of this elective framework help students in their development as self-directed, versatile, life-long learners, which are essential in today’s volatile and changing societal as well as occupational landscapes.

For a list of electives offered, please visit [www.sp.edu.sg](http://www.sp.edu.sg).
The Computing and IT sector is a fast-growing area in Singapore. Singapore has always been at the forefront in the design, development and implementation of computers, networks and digital systems. Its world-class network infrastructure and IT base allows one to communicate, use and develop areas of computing technologies on par with the rest of the world. With the fast growth in Cloud Computing and the ‘Internet of Things’ (IoT), there will be huge demand for computer engineers who can innovate, develop and implement advanced computing systems.

Computer Engineering is a discipline about the hardware and software aspects of computer science. Computers are inarguably at the heart of many modern and high-tech systems, for example robotics, medical instruments, public transportation systems and weapon systems. Digital devices and systems are becoming smarter because of computers.

The Diploma in Computer Engineering (DCPE) course aims to train technologists who can design, develop, maintain and implement computer systems and applications.

The course has been designed for broad coverage of computing and networking technologies. Students can select the area of expertise in Computer Engineering to follow their interests and deepen their knowledge. By concentrating on a group of closely related modules, students can follow their interests and steer their path towards a successful career in the computing sector.

FIRST YEAR
The DCPE course follows a common first year of study with most of the other engineering diploma courses in the School of Electrical & Electronic Engineering. Students are provided with the necessary foundation in Electrical & Electronic Engineering, Computer Programming and Mathematics.

SECOND YEAR
Students learn more advanced computer engineering subjects. They will make a choice between two paths based on their interest, career plan and strength:

- Computer Engineering & Software (CES)
- Computer Networking & Security (CNS)

OPTIONS
For either the CES or CNS path, there are three options offered during Year 3 of the DCPE course. Each option will lead to a specialisation in an important area in the computer industry. The options offered are:

- Computer Applications (for CES only)
- Cloud Systems (for both CES and CNS)
- Cyber Security (for CNS only)

The CES path emphasises on computer hardware interfacing and software programming. Students will learn about microcontroller applications, computer interfacing, mobile app development, and server-side programming.

The CNS path concentrates on computer networking and security. Students will study a broad range of computer networking topics in infrastructure design, LANs and WAN implementations, TCP/IP, wired and wireless network implementation.

In the final year of study, DCPE students further enhance their knowledge in computer hardware, digital technologies for Smart Cities, cloud computing and cyber security through the various options offered to them. Students are free to choose any one Year-3 option from three specialisation areas available under the CES or CNS path. Each option comprises of four highly specialised modules closely following the industry trends.

The three Year 3 options offered to students on the CES path are:
- Computer Applications
- Smart City Technologies
- Cloud Systems

The three Year 3 options offered to students on the CNS path are:
- Cyber Security
- Smart City Technologies
- Cloud Systems

For either the CES or CNS path, there are different Year 3 options available under the CES or CNS specialisation path. Each option comprises of four highly specialised modules closely following the industry trends.

Are you looking to challenge yourself? The Engineering Academy Programme is a new pathway available to a limited number of engineering students from the School Mechanical & Aeronautical Engineering (MAE) and School of Electrical & Electronic Engineering (EEE). Outstanding students are eligible for the Engineering Academy Programme in Year 2. Under this programme, students will go through an alternative curriculum designed to develop them to be engineers with creative confidence, comfortable with uncertainty, a growth mind-set and are self-driven learners. If you are selected for the Engineering Academy Programme, you will be exposed to an enriching and intensive experience where you learn to build workable solutions to real world problems. That means, figuring out the right questions to ask, taking charge of your own learning, working through uncertainty and being comfortable with having to try and try again. At the Engineering Academy Programme, you will be placed in an environment where innovation happens. You will collaborate with peers from other Engineering diplomas, learn about Design and Business, prototype quickly and have opportunities to work closely with industry and university partners.

INTERNSHIP
DCPE students will go for a 22-week Internship Programme in Year 3. The Internship Programme will provide students with invaluable authentic industrial learning experience in the computer engineering industry.
### Scholarships

Ample prestigious scholarships from SP and industry (e.g. Singtel, CSIT) are available for application by outstanding DCPE students.

### Career Prospects

There is a great demand for computer engineering personnel not only in the Information Technology sectors, but also in all industries, businesses and establishments. DCPE graduates will be able to develop careers as Associate Computer Engineers, Software/Mobile Applications Developers, Network Engineer, Network/System Administrator, Cloud Systems/Data Centre Administrator or Cyber Security Specialist.

Those graduates with industrial certification can expect very attractive remuneration packages. There are ample career opportunities for DCPE graduates due to their ability to design, install, manage and maintain computer and digital systems. They will play a key role in bringing Singapore forward as a global hub for Information and Communication Services.

### Assessments

Assessment during each year of the diploma course will be by means of in-course assessments, practical tests and semestral examinations. Students will participate in collaborative projects implemented as project-based independent learning assignments. Training them to look beyond their scope of studies.

### Further Studies

The prospects for further studies are great for DCPE graduates. They can choose to pursue a degree in Computer Science, Computer Engineering, Information Communication Engineering or Electrical & Electronic Engineering.

Graduates may gain direct entry into the Year 2 or Year 3 of degree courses in local and overseas universities.

### Course Modules

<table>
<thead>
<tr>
<th>Year 1</th>
<th>HOURS</th>
<th>Year 2</th>
<th>HOURS</th>
<th>Year 3</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electives 1</td>
<td>60</td>
<td>Electives 1</td>
<td>60</td>
<td>Internship Programme</td>
<td>22 weeks</td>
</tr>
<tr>
<td>ET0010 Microcontroller Applications</td>
<td>90</td>
<td>ET0010 Microcontroller Applications</td>
<td>90</td>
<td>IC4001 Internship Programme</td>
<td>22 weeks</td>
</tr>
<tr>
<td>ET0021 Cloud Systems (for both CES and CNS paths)</td>
<td>75</td>
<td>ET0021 Cloud Systems (for both CES and CNS paths)</td>
<td>75</td>
<td>IC4003 Internship Programme</td>
<td>22 weeks</td>
</tr>
<tr>
<td>ET0022 Data Structure &amp; Algorithms</td>
<td>75</td>
<td>ET0022 Data Structure &amp; Algorithms</td>
<td>75</td>
<td>IC4004 Internship Programme</td>
<td>22 weeks</td>
</tr>
<tr>
<td>ET0023 Client-server Applications Development</td>
<td>75</td>
<td>ET0023 Client-server Applications Development</td>
<td>75</td>
<td>IC4005 Internship Programme</td>
<td>22 weeks</td>
</tr>
<tr>
<td>ET0024 Database Applications</td>
<td>75</td>
<td>ET0024 Database Applications</td>
<td>75</td>
<td>IC4006 Internship Programme</td>
<td>22 weeks</td>
</tr>
<tr>
<td>ET0025 Mobile Application Development</td>
<td>75</td>
<td>ET0025 Mobile Application Development</td>
<td>75</td>
<td>IC4007 Internship Programme</td>
<td>22 weeks</td>
</tr>
<tr>
<td>ET0026 Network Application Development</td>
<td>75</td>
<td>ET0026 Network Application Development</td>
<td>75</td>
<td>IC4008 Internship Programme</td>
<td>22 weeks</td>
</tr>
<tr>
<td>ET0027 Network &amp; Security Tools</td>
<td>75</td>
<td>ET0027 Network &amp; Security Tools</td>
<td>75</td>
<td>IC4009 Internship Programme</td>
<td>22 weeks</td>
</tr>
<tr>
<td>ET0028 Network Architectures &amp; Protocols</td>
<td>75</td>
<td>ET0028 Network Architectures &amp; Protocols</td>
<td>75</td>
<td>IC4010 Internship Programme</td>
<td>22 weeks</td>
</tr>
<tr>
<td>ET0029 Network Design &amp; Security</td>
<td>75</td>
<td>ET0029 Network Design &amp; Security</td>
<td>75</td>
<td>IC4011 Internship Programme</td>
<td>22 weeks</td>
</tr>
<tr>
<td>ET0030 Computer Networking</td>
<td>75</td>
<td>ET0030 Computer Networking</td>
<td>75</td>
<td>IC4012 Internship Programme</td>
<td>22 weeks</td>
</tr>
<tr>
<td>ET0031 Network &amp; Security</td>
<td>75</td>
<td>ET0031 Network &amp; Security</td>
<td>75</td>
<td>IC4013 Internship Programme</td>
<td>22 weeks</td>
</tr>
<tr>
<td>ET0032 Operating Systems</td>
<td>75</td>
<td>ET0032 Operating Systems</td>
<td>75</td>
<td>IC4014 Internship Programme</td>
<td>22 weeks</td>
</tr>
<tr>
<td>ET0033 Operating Systems</td>
<td>75</td>
<td>ET0033 Operating Systems</td>
<td>75</td>
<td>IC4015 Internship Programme</td>
<td>22 weeks</td>
</tr>
<tr>
<td>ET0034 Data Centre Management</td>
<td>75</td>
<td>ET0034 Data Centre Management</td>
<td>75</td>
<td>IC4016 Internship Programme</td>
<td>22 weeks</td>
</tr>
<tr>
<td>ET0035 Cyber Security</td>
<td>75</td>
<td>ET0035 Cyber Security</td>
<td>75</td>
<td>IC4017 Internship Programme</td>
<td>22 weeks</td>
</tr>
<tr>
<td>ET0036 Cyber Security</td>
<td>75</td>
<td>ET0036 Cyber Security</td>
<td>75</td>
<td>IC4018 Internship Programme</td>
<td>22 weeks</td>
</tr>
<tr>
<td>ET0037 Smart City Systems</td>
<td>75</td>
<td>ET0037 Smart City Systems</td>
<td>75</td>
<td>IC4019 Internship Programme</td>
<td>22 weeks</td>
</tr>
</tbody>
</table>

**Electives**: The SP elective framework offers students options to pursue their passion and/or meet different career needs, and is an integral part of the holistic education we seek to provide to our students. The learning experiences of this elective framework help students in their development as self-directed, versatile, life-long learners, which are essential in today’s volatile and changing societal as well as occupational landscape.

For a list of electives offered, please visit www.sp.edu.sg.

---

**References**

The SP elective framework offers students options to pursue their passion and/or meet different career needs, and is an integral part of the holistic education we seek to provide to our students. The learning experiences of this elective framework help students in their development as self-directed, versatile, life-long learners, which are essential in today’s volatile and changing societal as well as occupational landscape.

For a list of electives offered, please visit www.sp.edu.sg.
The Diploma in Electrical and Electronic Engineering (DEEE) course aims to produce competent technologists who are capable of working in a wide range of electrical and electronic engineering industries. It will equip students with Design Thinking skills to enable them to effectively conceive new products and services. The course is designed to impart sufficient breadth of electrical and electronic engineering knowledge while allowing students great flexibility in choosing their preferred specialisations.

Electrical and electronic engineering is the broadest and most dynamic course which includes the making of the semiconductor chips for your smartphone, Industry 4.0 concepts and technologies, the handling of cutting-edge healthcare equipment and the design of power transmission and distribution systems. These are major sectors in Singapore’s economy.

The key advantage of this course is its flexibility. It offers several specialisations for students to choose and customise their curriculum according to individual interests and abilities.

The DEEE course is taught using the Conceive-Design-Implement-Operate (CDIO) framework. This framework, which is used in several top universities in the United States, Europe and Australia, ensures that students are trained to possess critical thinking, process and life skills. It also ensures that students are given ample opportunities to design and build projects that will enhance the understanding of key concepts taught.

FIRST & SECOND YEAR
Students are provided with the necessary foundation in Electrical and Electronic Engineering, Project Fabrication skills, Programming and Mathematics.

THIRD YEAR
Students will specialise in one of the six specialisations offered. Each specialisation allows students to study their choice of specialisation in greater depth. Students will be provided with course counselling at appropriate times. The six specialisations include:

- Biomedical
- Communication
- Microelectronics
- Power
- Rapid Transit Technology
- Robotics & Control

Students will attend lectures, tutorials, practical computer sessions and laboratory, as well as project sessions throughout the three years of study. In their final year, students will go for a 22-week internship at reputable companies to deepen their skills and provide them with exposure to real world projects. Students can also choose to be involved in industry, research, competition or other high profile projects in lieu of attachment at a company for internship.

INTERNSHIPS
DEEE students will go for a 22-week internship in Year 3. The internship can be carried out either locally or overseas. The internship will expose the students to invaluable authentic industrial learning experience in the electrical and electronic industry and for those who opt for overseas training, an opportunity to experience a different culture.

ENGINEERING ACADEMY PROGRAMME
Are you looking to challenge yourself? The Engineering Academy Programme is a new pathway available to a limited number of engineering students from the School of Electrical & Electronic Engineering (EEE).

Outstanding DEEE students are eligible for the Engineering Academy Programme in Year 2. Under this programme, students will go through an alternative curriculum designed to develop them to be engineers with creative confidence, comfortable with uncertainty, a growth mind-set and are self-driven learners.

If you are selected for the Engineering Academy Programme, you will be exposed to an exciting and intensive experience where you learn to build workable solutions to real world problems. That means, figuring out the right questions to ask, taking charge of your own learning, working through uncertainty and being comfortable with having to try and try again. At the Engineering Academy Programme, you will be placed in an environment where innovation happens. You will collaborate with peers from other Engineering diplomas, learn about Design and Business, prototype quickly and have opportunities to work closely with industry and university partners.

ASSESSMENT
Assessment during each year of the diploma course will be by means of in-semester assessments, practical tests and semestral examinations.
For a list of electives offered, please visit www.sp.edu.sg.

Electives in the areas of Machine & Aeronautical Engineering, School of Electrical & Electronic Engineering, School of Mechanical & Aeronautical Engineering and School of Business, to provide students with an exciting range of learning opportunities.

The Diploma in Engineering with Business (DEB) is an innovative multi-disciplinary course that provides students with cross-training in both engineering and business. The course leverages on the experience and expertise of three schools, namely, School of Electrical & Electronic Engineering, School of Mechanical and Aeronautical Engineering and School of Business, to provide students with an exciting range of learning opportunities.

This diploma is specially designed for students who have a keen interest in mathematics, science and technology, but who may not wish to pursue a pure engineering course, thus offering greater choices and flexibility in their learning journey.

This course offers:
- A curriculum with modules from three SP schools – School of Electrical & Electronic Engineering, School of Mechanical and Aeronautical Engineering and School of Business
- Integration of engineering and business knowledge with a strong focus on technopreneurship.
- An exciting 2-week overseas exchange programme (Learning Express) where you will use your skills and knowledge to improve lives in the real world.
- 22-week internship opportunities at reputable local or overseas companies such as OCBC, Mapletree, ST Electronics, Panasonic, SSMC and A*STAR.
- Opportunities to join the premier Engineering Academy programme and take part in local and overseas competitions.
- A curriculum that follows the CDIO (Conceive-Design-Implement-Operate) framework which is adopted in top universities such as MIT.
- A proven track record of DEB graduates admitted to local and overseas universities such as NUS, NTU, SUTD, SMU, SIT and University College London (UCL) with up to 2 years of advanced standing.

CAREER PROSPECTS
Graduates can find employment in a wide range of the industrial sectors covering aerospace, biomedical automation, telecommunication, power engineering, rapid transit, microelectronics and more. Students can work as an Assistant Electrical Engineer, Assistant Electronics Engineer, Assistant Project Engineer, Assistant Test Engineer, Assistant Process Engineer, Assistant Quality Engineer, Biomedical Equipment Service Engineer, Field Service Associate Engineer, Material Planner, Technical Officer (Control & Instrumentation) or Technical Officer (Power Distribution System). Your diploma is recognised by the Energy Market Authority (EMA) for the application of an Electrical Technician License if you seek to specialise in Power Engineering.

FURTHER STUDIES
Graduates with good results will be eligible for admission to the second year of the Electrical and Electronic Engineering course at the Nanyang Technological University (NTU) or gain about one year’s experience in the job market. Those who wish to pursue further studies may consider the Diploma in Engineering with Business (DEB) is an innovative multi-disciplinary course that provides students with cross-training in both engineering and business. The course leverages on the experience and expertise of three schools, namely, School of Electrical & Electronic Engineering, School of Mechanical and Aeronautical Engineering and School of Business, to provide students with an exciting range of learning opportunities.

This diploma is specially designed for students who have a keen interest in mathematics, science and technology, but who may not wish to pursue a pure engineering course, thus offering greater choices and flexibility in their learning journey.

This course offers:
- A curriculum with modules from three SP schools – School of Electrical & Electronic Engineering, School of Mechanical and Aeronautical Engineering and School of Business
- Integration of engineering and business knowledge with a strong focus on technopreneurship.
- An exciting 2-week overseas exchange programme (Learning Express) where you will use your skills and knowledge to improve lives in the real world.
- 22-week internship opportunities at reputable local or overseas companies such as OCBC, Mapletree, ST Electronics, Panasonic, SSMC and A*STAR.
- Opportunities to join the premier Engineering Academy programme and take part in local and overseas competitions.
- A curriculum that follows the CDIO (Conceive-Design-Implement-Operate) framework which is adopted in top universities such as MIT.
- A proven track record of DEB graduates admitted to local and overseas universities such as NUS, NTU, SUTD, SMU, SIT and University College London (UCL) with up to 2 years of advanced standing.

NATIONAL DIPLOMA IN ENGINEERING
The Diploma in Engineering with Business (DEB) is an innovative multi-disciplinary course that provides students with cross-training in both engineering and business. The course leverages on the experience and expertise of three schools, namely, School of Electrical & Electronic Engineering, School of Mechanical and Aeronautical Engineering and School of Business, to provide students with an exciting range of learning opportunities.

This diploma is specially designed for students who have a keen interest in mathematics, science and technology, but who may not wish to pursue a pure engineering course, thus offering greater choices and flexibility in their learning journey.

This course offers:
- A curriculum with modules from three SP schools – School of Electrical & Electronic Engineering, School of Mechanical and Aeronautical Engineering and School of Business
- Integration of engineering and business knowledge with a strong focus on technopreneurship.
- An exciting 2-week overseas exchange programme (Learning Express) where you will use your skills and knowledge to improve lives in the real world.
- 22-week internship opportunities at reputable local or overseas companies such as OCBC, Mapletree, ST Electronics, Panasonic, SSMC and A*STAR.
- Opportunities to join the premier Engineering Academy programme and take part in local and overseas competitions.
- A curriculum that follows the CDIO (Conceive-Design-Implement-Operate) framework which is adopted in top universities such as MIT.
- A proven track record of DEB graduates admitted to local and overseas universities such as NUS, NTU, SUTD, SMU, SIT and University College London (UCL) with up to 2 years of advanced standing.

Singapore Polytechnic Prospectus 2019/20

Diploma in Engineering with Business (DEB)
INTERNSHIPS
In the final year of study, all students will participate in a 22-week enhanced internship. Students will gain real-world work experience either locally or overseas as an intern at organisations or at our Technology Innovation Centres. The internship programme will expose students to invaluable authentic industrial learning experience in the engineering and business services sector.

ENGINEERING ACADEMY PROGRAMME
Are you looking to challenge yourself? The Engineering Academy Programme is a new pathway available to a limited number of engineering students from the School Mechanical & Aeronautical Engineering (MAE) and School of Electrical & Electronic Engineering (EEE). Outstanding students are eligible for the Engineering Academy Programme in Year 2. Under this programme, students will go through an alternative curriculum designed to develop them to be engineers with creative confidence, comfortable with uncertainty, a growth mindset and are self-driven learners.

If you are selected for the Engineering Academy Programme, you will be exposed to an exciting and intensive experience where you learn to build workable solutions to real world problems. That means, figuring out the right questions to ask, taking charge of your own learning, working through uncertainty and being comfortable with having to try and try again. At the Engineering Academy Programme, you will be placed in an environment where innovation happens. You will collaborate with peers from other Engineering diplomas, learn about Design and Business, prototype quickly and have opportunities to work closely with industry and university partners.

ASSESSMENT
Assessment during each year of study will be by means of in-course assessments, practical tests and semester examinations.

SCHOLARSHIPS
Ample prestigious scholarships from SP are available for application by outstanding DEB students.

CAREER PROSPECTS
Graduates of this diploma will be versatile and be able to pursue rewarding careers in both engineering and business organisations. Given the cross-disciplinary training and with adequate working experience, graduates can aspire to become entrepreneurs.

FURTHER STUDIES
Graduates of this course have the flexibility to further their studies in business, various engineering (with business minor) or similar inter-disciplinary programmes in both local and overseas universities. Graduates are eligible for admission to the second year of the Electrical & Electronic Engineering (with business minor) course at the Nanyang Technological University (NTU) or gain about one years’ worth of exemptions at the National University of Singapore (NUS). Graduates of this course have also been admitted to the Singapore University of Technology and Design (SUTD), Singapore Management University (SMU), Singapore Institute of Technology (SIT), University College London and University of Melbourne.

### COURSE MODULES

#### FIRST YEAR
- **BA0127** Fundamentals of Business 60
- **BA0312** Principles of Marketing 60
- **ET0083** Structured Programming 60
- **ET0085** Computer Aided Design & Drafting (CADD) 30
- **ETI003** Digital Electronics I 60
- **ETI005** Principles of Electrical & Electronic Engineering I 60
- **ETI215** Engineering Design & Business Project I 60
- **ETI011** Introduction to Engineering I 60
- **LC0350** Critical & Analytical Thinking 30
- **LC0351** Narrative Thinking 30
- **MED101** Mechanics I 60
- **MED401** Thermofluids I 60
- **MS4250** Basic Mathematics 60
- **MS4251** Engineering Mathematics I 60

#### SECOND YEAR
- **BA0232** Business Planning for New Ventures 45
- **BAI024** Professional Selling 30
- **ETI025** Mobile Application Development 75
- **ETI006** Principles of Electrical & Electronic Engineering II 90
- **ETI210** Microcontroller Applications 90
- **ETI217** Engineering Projects for Entrepreneurs 75
- **LC0356** Communicating for Project Effectiveness (Report) 30
- **LCB062** Design Thinking for Social Innovation 30
- **MED904** Mechanical Engineering Systems 60
- **MS6360** Statistics & Analytics 60
- **MS6361** Engineering Mathematics II 60

For more information on Part-Time Diploma Courses, you may refer to www.pace.sp.edu.sg.
AEROSPACE ENGINEERING HUB
The Aerospace Engineering Hub (AeroHub) supports the Diploma in Aerospace Engineering and addresses the needs of the Aerospace industry. It provides a platform for students learning and working in the area of Unmanned Aerial Vehicles. In addition to various laboratories such as Electrical Systems, Servo Mechanisms and Electronics, Aircraft Communication and Navigation Systems, AeroHub is also equipped with aircraft facilities (i.e. King Air B90 and Hawker 700A) and an A320 full-motion flight simulator. With the support of the experienced staff, the students at AeroHub won many awards in Singapore Amazing Flying Machine Competition and Autonomous Aerial Vehicle Challenge in Thailand.

BIOMEDICAL ENGINEERING HUB
The Biomedical Engineering Hub provides a conducive environment and infrastructure for staff and students to be involved in applied research and development work in the area of healthcare and rehabilitation. The hub focuses on the development of solutions for use in real-life situations and has strong record of accomplishment in securing grants to develop prototypes for healthcare industry.

ENERGY & RAPID TRANSIT HUB
The Energy & Rapid Transit Hub aspires to be a Centre of Excellence in learning and development of latest technologies in renewable energy, energy efficiency, electrical power systems and green transportation. The Hub is equipped with solar and wind power stations and various smart power smart power networks (microgrids and smart grid) to provide students with a platform to learn and build up capabilities and skills in the design, operation and maintenance of various energy systems through hands-on exercises or final year projects. The Hub also has a Rail System Simulator that is designed to train students in rail system technical skills and competencies for the relevant functions of the railway operations.

IOT AND SMART SOLUTIONS HUB
The IoT and Smart Solutions Hub aspires to be the catalyst that provides technical consultations, trainings, and seminars in the areas of IoT, cloud computing, embedded systems applications, smart devices and wireless applications. Cybersecurity and data analytics. Backed by the robust experiences of our academic and research staff, the hub has ongoing project collaborations with other government agencies, businesses and industry partners.

One of the key facilities in this hub is the SP Smart Connected Solution lab. This lab houses equipment meant to train students and adult learners on the technologies behind Internet of Things (IoT), as well as the architecture design concept that makes large scale IoT deployment scalable and sustainable. The equipment is able to demonstrate the entire process from data acquisition to data connectivity, allowing users to write applications that use the captured data for monitoring, predictive and preventive maintenance, and devise corrective actions. A critical learning takeaway - students are able to apply the theories they have learnt to an actual real-life scenario.

The hub welcomes collaborations with more industry partners in these exciting emerging technologies.

POWER & AUTONOMOUS ELECTRIC VEHICLE HUB
This hub explores on the many technologies to develop an autonomous electric vehicle. Different enabling technologies such as sensors, navigation, control and drive systems, intelligent communication, machine learning and artificial intelligence. Students can learn and build up capabilities and provide training for the future engineers that will be needed in this autonomous electric vehicle market. The hub also provides high voltage training.

ROBOTICS, AUTOMATION & CONTROL HUB
This hub is set up to develop automation and robotics solutions to meet the emerging industry equipment manufacturing industry in Singapore. It focuses on developing capability in Industry 4.0 and design/implementation of solutions such as automation & control, autonomous robots, big data and analytics, augmented reality. IoT etc. In the automation hub the students supports manpower training in enabling technologies for I4.0.

The hub is equipped with automation tools and autonomous robots to develop advanced technologies and integrated solutions in industrial automation and control and specialized in factory automation, process automation, instrumentation and control applications. The hub has worked with autonomous robots such as industrial robots, collaborative robots, social robots etc.

SEMICONDUCTOR HUB
This hub is set up to address the needs of the semiconductor industry, focussing on development in capability in design and implementing embedded systems technology and semiconductor process technology. The hub which consists of the Nanofab and IC Design labs provides the facilities to train students for the semiconductor industry and technology development in the area of IC design, embedded solutions (FPGA), Wafer Fabrication, Micro-Electromechanical Systems (MEMS) and Flexible Electronics. The Nanofab lab comprises a 450-square metre cleanroom of class 1000 to 10000 and houses the processing tools such as mask aligners, PECVD Diffusion/oxidation furnace, IC, RIE, Sputtering systems, SEM, AFM, profilers and many more. The IC Design lab houses workstations with IC Design software such as Cadence and Xilinx software.

Young Engineers Club (YEC)
Set up for the purpose of conducting enrichment programmes and other activities for budding talent under the Young Engineers Club. It serves as a platform where secondary school students can exercise their creativity and ingenuity to create engineering models and projects. In this lab, resources for learning of basic engineering in a fun and interesting manner are available for students to experience and enjoy participation in the projects.

LEARNING LABORATORIES

AIRCRAFT ELECTRICAL SYSTEMS & SERVO MECHANISMS AND ELECTRONICS
This laboratory houses professional aircraft electrical systems training equipment for students to acquire deep skills through experiential learning. The Aircraft Electrical Systems, Servo Mechanisms & Protection Systems Trainer. Aircraft Fox & Ram Protection Systems Trainer as well as the training 747 Electrical Systems Training Panel in this laboratory provides students a practical platform to learn and develop a solid foundation in the network of components that generate, transmit, distribute, utilize and store electrical energy in an aircraft which is essentially the aircraft electrical system.

This laboratory is also equipped with Servomechanisms and Electronic Systems, with various electronic circuit boards, systems, computer simulation software and hardware. Students will learn the basics of electronics as well as the working principles of these systems and the operation of the ARINC digital data bus in aircraft systems.

AIRCRAFT COMMUNICATION AND NAVIGATION SYSTEMS
This laboratory is equipped with various aircraft systems such as pilot-static systems, gnosics systems, compass systems, air-data systems and electronic display systems. Students will learn the fundamentals basic concepts as well as the working principles of these systems and the operation of the ARINC digital data bus in aircraft systems.

FLIGHT SIMULATOR AND MAINTENANCE TRAINER
This laboratory houses the Airbus A320 Flight Simulator and Maintenance Trainer. Students are able to gain an integrated and real-time understanding of the operation of aircraft systems and functions of the aircraft electrical systems through the Airbus A320 Flight Simulation. As a maintenance trainer, the aircraft systems faults can be simulated and reported. Such knowledge is important and necessary for the maintenance engineers to understand faults better before carrying out troubleshooting work.

MAINTENANCE (ELECTRICAL)
This laboratory provides equipment and tools that are used to train students on the skills for maintaining and repairing aircraft electrical systems. Students will be able to learn and practice their skills in crimping, wire locking, etc. In the laboratory, students will also learn how to use aircraft electrical measuring instruments to perform electrical tests to check on wire continuity and insulation.

AIRCRAFT INSTRUMENT SYSTEMS
This laboratory is equipped with various aircraft systems such as pilot-static systems, gnosics systems, compass systems, air-data systems and electronic display systems. Students will learn the fundamentals basic concepts as well as the working principles of these systems and the operation of the ARINC digital data bus in aircraft systems.

AIRCRAFT COMMUNICATION AND NAVIGATION SYSTEMS
This laboratory is designed to develop automation and robotics solutions to meet the emerging industry equipment manufacturing industry in Singapore. It focuses on developing capability in Industry 4.0 and design/implementation of solutions such as automation & control, autonomous robots, big data and analytics, augmented reality, IoT etc. In the automation hub the students supports manpower training in enabling technologies for I4.0. The hub is equipped with automation tools and autonomous robots to develop advanced technologies and integrated solutions in industrial automation and control and specialized in factory automation, process automation, instrumentation and control applications. The hub has worked with autonomous robots such as industrial robots, collaborative robots, social robots etc.

SEMICONDUCTOR HUB
This hub is set up to address the needs of the semiconductor industry, focussing on development in capability in design and implementing embedded systems technology and semiconductor process technology. The hub which consists of the Nanofab and IC Design labs provides the facilities to train students for the semiconductor industry and technology development in the area of IC design, embedded solutions (FPGA), Wafer Fabrication, Micro-Electromechanical Systems (MEMS) and Flexible Electronics. The Nanofab lab comprises a 450-square metre cleanroom of class 1000 to 10000 and houses the processing tools such as mask aligners, PECVD Diffusion/oxidation furnace, IC, RIE, Sputtering systems, SEM, AFM, profilers and many more. The IC Design lab houses workstations with IC Design software such as Cadence and Xilinx software.

Young Engineers Club (YEC)
Set up for the purpose of conducting enrichment programmes and other activities for budding talent under the Young Engineers Club. It serves as a platform where secondary school students can exercise their creativity and ingenuity to create engineering models and projects. In this lab, resources for learning of basic engineering in a fun and interesting manner are available for students to experience and enjoy participation in the projects.

LEARNING LABORATORIES

AIRCRAFT ELECTRICAL SYSTEMS & SERVO MECHANISMS AND ELECTRONICS
This laboratory houses professional aircraft electrical systems training equipment for students to acquire deep skills through experiential learning. The Aircraft Electrical Systems, Servo Mechanisms & Protection Systems Trainer. Aircraft Fox & Ram Protection Systems Trainer as well as the training 747 Electrical Systems Training Panel in this laboratory provides students a practical platform to learn and develop a solid foundation in the network of components that generate, transmit, distribute, utilize and store electrical energy in an aircraft which is essentially the aircraft electrical system.

This laboratory is also equipped with Servomechanisms and Electronic Systems, with various electronic circuit boards, systems, computer simulation software and hardware. Students will learn the fundamentals basic concepts as well as the working principles of these systems and the operation of the ARINC digital data bus in aircraft systems.

AIRCRAFT COMMUNICATION AND NAVIGATION SYSTEMS
This laboratory is equipped with various aircraft systems such as pilot-static systems, gnosics systems, compass systems, air-data systems and electronic display systems. Students will learn the fundamentals basic concepts as well as the working principles of these systems and the operation of the ARINC digital data bus in aircraft systems.

FLIGHT SIMULATOR AND MAINTENANCE TRAINER
This laboratory houses the Airbus A320 Flight Simulator and Maintenance Trainer. Students are able to gain an integrated and real-time understanding of the operation of aircraft systems and functions of the aircraft electrical systems through the Airbus A320 Flight Simulation. As a maintenance trainer, the aircraft systems faults can be simulated and reported. Such knowledge is important and necessary for the maintenance engineers to understand faults better before carrying out troubleshooting work.

MAINTENANCE (ELECTRICAL)
This laboratory provides equipment and tools that are used to train students on the skills for maintaining and repairing aircraft electrical systems. Students will be able to learn and practice their skills in crimping, wire locking, etc. In the laboratory, students will also learn how to use aircraft electrical measuring instruments to perform electrical tests to check on wire continuity and insulation.

AIRCRAFT INSTRUMENT SYSTEMS
This laboratory is equipped with various aircraft systems such as pilot-static systems, gnosics systems, compass systems, air-data systems and electronic display systems. Students will learn the fundamentals basic concepts as well as the working principles of these systems and the operation of the ARINC digital data bus in aircraft systems.

AIRCRAFT COMMUNICATION AND NAVIGATION SYSTEMS
This laboratory is designed to develop automation and robotics solutions to meet the emerging industry equipment manufacturing industry in Singapore. It focuses on developing capability in Industry 4.0 and design/implementation of solutions such as automation & control, autonomous robots, big data and analytics, augmented reality, IoT etc. In the automation hub the students supports manpower training in enabling technologies for I4.0. The hub is equipped with automation tools and autonomous robots to develop advanced technologies and integrated solutions in industrial automation and control and specialized in factory automation, process automation, instrumentation and control applications. The hub has worked with autonomous robots such as industrial robots, collaborative robots, social robots etc.

SEMICONDUCTOR HUB
This hub is set up to address the needs of the semiconductor industry, focussing on development in capability in design and implementing embedded systems technology and semiconductor process technology. The hub which consists of the Nanofab and IC Design labs provides the facilities to train students for the semiconductor industry and technology development in the area of IC design, embedded solutions (FPGA), Wafer Fabrication, Micro-Electromechanical Systems (MEMS) and Flexible Electronics. The Nanofab lab comprises a 450-square metre cleanroom of class 1000 to 10000 and houses the processing tools such as mask aligners, PECVD Diffusion/oxidation furnace, IC, RIE, Sputtering systems, SEM, AFM, profilers and many more. The IC Design lab houses workstations with IC Design software such as Cadence and Xilinx software.

Young Engineers Club (YEC)
Set up for the purpose of conducting enrichment programmes and other activities for budding talent under the Young Engineers Club. It serves as a platform where secondary school students can exercise their creativity and ingenuity to create engineering models and projects. In this lab, resources for learning of basic engineering in a fun and interesting manner are available for students to experience and enjoy participation in the projects.
BIOMEDICAL SIGNAL & IMAGE PROCESSING
This lab provides Year 3 students with an experience in biomedical signal image processing through experimental equipment and imaging devices. It is equipped with biomedical signal acquisition systems including EEG, ECG and imaging devices such as ultrasound machines, slit lamp and x-ray modular to train students on how to gather biomedical signals and images. With the aid of computers, students will perform experiments in signal analysis and 2D/3D image processing. In addition, the lab is also equipped with biomedical equipment such as microscopes, ventilators and testers. ECG machines, defibrillators, ventilators and electrical infusion pumps. Students will learn the principles of operating the medical equipments and monitoring them over the network.

BROADBAND COMMUNICATION
This lab provides Year 2 and Year 3 students with practical experience in the configuration, troubleshooting, and maintenance of computer and broadband networks. Students will be able to work on networking devices like Cisco routers. Ethernet switches. GPON systems. ATM switches. DSLAM. and media gateway.

BUILDING AUTOMATION SYSTEMS
Equipped with direct DDC controller, simulator boards, building automation networks and quipped for experiments on building automation systems, energy conservation systems as well as central air-conditioning systems.

CIRCUIT THEORY & ANALYSIS
The laboratory is used by students for carrying out experiments to complement the understanding of theories and concepts taught. Experiments on more advanced topics of electrical engineering include testing different types of circuits, three-phase power measurements, power factor correction, series and parallel resonance, network analysis and star-delta transformation.

COMPUTER NETWORKING 1
Used by Year 1 students to familiarise themselves with basic networking concepts such as IP addressing, file and printer sharing and networking devices such as switches and routers. Besides peer-to-peer networking, they learn client-server environment with web, FTP and DNS services. Packet filtering as a form of network security and disaster prevention measures are also covered in the lab exercises. The laboratory is also designed to provide students with the necessary exposure to transferring multimedia information across networks.

COMPUTER NETWORKING 2
Used by Year 2 students, it houses Cisco routers and switches set up as a 5-router/ 2-switch configuration. Each group of students undertakes to set up routing and switching strategies on the equipment, emulating the transfer of information over a small network or across networks spanning several offices. Students also develop routing strategies to block or allow access to information.

COMPUTER NETWORKING 3
The lab is used by Year 1 students to gain hands-on experience on different services available on a network. They construct their first working LAN from basic equipment, learn to share computer and network services, connect to dial-up and online systems and practise inter-connecting computers using basic network equipment.

COMPUTER NETWORKING 4
Students are introduced to different computer and network configuration here. They learn how to set up network servers and a local area network comprising of routers and switches. The laboratory is also designed to provide students with the necessary exposure to transferring multimedia information across networks.

COMPUTER OPERATIONS 1
Used by Year 1 students, the laboratory supports the teaching of basic workstation operations. Students are exposed to different operating system styles and they will use in their three-year long diploma course. They learn how to install, configure workstation operation systems, and understand the utilities offered by the different operating systems.

COMPUTER OPERATIONS 2
With a one-to-one ratio of workstation and server, each student sets up his/her own computer server and workstation. Students learn how to install and configure their own computer workstation and understand how to set up the necessary server operations and services for users. In order to check that the services are set up correctly, students then use the attached workstation services to access and verify the set-ups.

COMPUTER SECURITY
Used by Year 2 and Year 3 students, the laboratory supports the teaching of Network Security and Firewall Technologies. Students have opportunity to learn to discover the security vulnerabilities in network systems and implement countermeasures to secure the networks.

CLIENT-SERVER SYSTEMS
The lab is equipped with 22 PCs and a server that supports full-year students. Students gain hands-on experience for Client Server Systems, Object Oriented Design and Programming, Multimedia Development, Database Management Systems and Creating Your Own DVD (General-Interactive) Electives. Students use Visual Studio .NET, Oracle .Developer, MS SQL Server, Macromedia and Adobe software for their lab experiments.

DATA COMMUNICATION SYSTEMS
The lab provides students with the necessary understanding of data collection equipment and techniques used in the implementation of data communication systems. It also provides with basic knowledge in the field of Computer Networks.

DATA STORAGE TECHNOLOGY
The lab is equipped with dedicated testers which give students practical hands-on experience in performing measurement of different types of Hard Disk Drive and Solid State Drive. The facility also provides students with opportunities to set various configurations of storage system to study their advantages and disadvantages. Students will carry out measurement of magnetic properties of different materials using in-house testers.

DESIGN & FABRICATION
Used by Year 2 students to learn how to design and fabricate a mechanical project. Essential skills like printed circuit board layout planning, soldering, circuit assembly and troubleshooting as well as integrating the mechanical and electronic parts are covered in extensive hands-on sessions. In this laboratory, an initiative teamwork, creative and critical thinking as well as presentation skills are also emphasised in this lab.

ELECTRICAL INSTALLATION
Used by Year 2 students to learn how to design and fabricate a mechanical project. Essential skills like printed circuit board layout planning, soldering, circuit assembly and troubleshooting as well as integrating the mechanical and electronic parts are covered in extensive hands-on sessions. In this laboratory, an initiative teamwork, creative and critical thinking as well as presentation skills are also emphasised in this lab.

ENGINEERING PROJECTS FOR ENTREPRENEURS
This lab is unique to the Diploma in Engineering with Business course to support students to design and develop products and systems for better integration of engineering projects and business practices. It provides facilities for students to perform prototyping of engineering designs and business ideas and facilitates interactive and collaborative project activities.

FABLAB@SP
This laboratory provides students with a platform for learning, innovation and invention. It is a place for students to create, learn, play, mentor and collaborate. FabLab@SP houses advanced equipment for digital fabrication, such as 3D printers, laser cutters, precision milling machine, CNC router, microcontroller boards like Arduino that include electronics workbench and more, allowing students to make almost anything it is part of the global fablab community of learners. educators, technologists, makers and innovators, a knowledge sharing network that is growing rapidly in Singapore. FabLab@SP is also actively involved in promoting the maker culture in Singapore.

FINAL-YEAR PROJECT
These laboratories provide sophisticated computers needed by full-time final-year students to construct and realise their final year projects. With SPICE connections for Internet access, the place provides a conducive environment for learning, teaching and managing the final-year projects by students and staff.

GREEN MOBILITY
This laboratory comes with facilities to learn the operation and control of DC and AC machines under different load conditions. They can also use the electric drive systems to control an electric train. The laboratory also houses equipment for learning rapid transit signalling concepts for Rapid Transit Signalling System.

HIGH SPEED INTELLIGENT & FLEXIBLE INSPECTION SYSTEM (HIIFS)
Part of the Centre for Fieldbus Technology, it houses several models of manufacturing plants that use PROFIBUS and Foundation Fieldbus. One of which is the High Speed Intelligent and Flexible Inspection System that demonstrates the integration of various devices used in factory automation. It also houses a full-scale Industrial Automation Laboratory which supports activities that are related to the process and factory automation industry. It is used for teaching of modules: Intelligent Systems and Systems and Control.

Equipment available includes a complete range of PLC with intelligent modules: fault tolerant control system, pneumatic components, sensors and instrumentation. Software and hardware tools for the configuration and analysis board milling, an electronics workbench and more, allowing students to make almost anything it is part of the global fablab community of learners. educators, technologists, makers and innovators, a knowledge sharing network that is growing rapidly in Singapore. FabLab@SP is also actively involved in promoting the maker culture in Singapore.
INTRODUCTION TO ENGINEERING

In this course, students will be introduced to the field of electrical engineering. They will learn about the basic principles of electricity, circuit theory, and the use of electronic devices. Students will use virtual laboratory equipment to design and build simple circuits and understand the behavior of electronic components. They will also be introduced to the use of software tools for circuit simulation and analysis.

PRINCIPLES OF ELECTRICAL AND ELECTRONIC ENGINEERING

This course covers the fundamentals of electrical and electronic engineering. Students will learn about the behavior of electrical circuits, the principles of measurement, and the use of electronic devices in various applications. They will also study the basics of digital electronics and microcontroller systems.

INTEGRATED CIRCUIT (IC) TESTING

In this course, students will learn about the testing and evaluation of integrated circuits. They will use various test equipment and software tools to perform functional tests and fault simulation on digital and analog ICs. Students will also learn about the use of logic analyzers and oscilloscopes for debugging electronic systems.

POWER ELECTRONICS & DRIVES

This course focuses on the design and analysis of power electronic systems and drive circuits. Students will learn about the principles of power electronics, including converters, inverters, and rectifiers. They will also study the operation of different types of drives, such as DC and AC motor drives.

ROBO-GARAGE

This lab provides hands-on experience in robotics and automation. Students will learn about the design and construction of simple robots, as well as the programming and control of robotic systems. They will use various software packages and tools for programming robots in a controlled environment.

NETWORK OPERATIONS 1

This module covers the fundamentals of networking and network management. Students will learn about the architecture of the Internet, network protocols, and the use of network management tools. They will also study the basics of network security and the use of network monitoring tools.

QUALITY & RELIABILITY

This course focuses on the principles of quality assurance and reliability engineering. Students will learn about the methods for designing reliable and maintainable systems, as well as the tools and techniques for assessing system performance.

PY SYSTEM AND SMART GRID

In this course, students will study the fundamentals of power systems and the principles of smart grid technology. They will learn about the design and operation of power systems, as well as the use of smart grid technologies for improving system efficiency and reliability.

WIRELESS NETWORKING

This course covers the fundamentals of wireless networking. Students will learn about the design and implementation of wireless networks, including the use of wireless devices and protocols. They will also study the principles of network security and the use of wireless networking tools.
OUR DIPLOMA COURSES
The School of Mechanical & Aeronautical Engineering offers six three-year full-time diploma courses:
- Aeronautical Engineering#
- Bioengineering#
- Mechanical Engineering#
- Mechatronics and Robotics#
- Engineering with Business (jointly offered with the School of Electrical & Electronic Engineering and SP Business School)
# Students may choose a Common Engineering Programme in the first semester.

INTERNSHIP PROGRAMME
The Internship is mandatory for students of the four diplomas offered solely by MAE. The programme provides authentic and essential out-of-classroom working experience. Students get to interact with and learn from industry experts.

ASSESSMENT
Assessment is based on regular course work and written examinations. A minimum standard must be attained for each stage of the course.

SP AERO HUB
Our state-of-the-art AERO Hub houses several operational fixed-wing and rotary-wing aircraft, a full-motion flight simulator completely designed and built by students and staff, and an Unmanned Aerial Vehicle (UAV) Aeronautical Centre for collaborative research and development work with universities and aerospace companies. The AERO Hub will also be extensively used to jointly teach degree courses in Aeronautical Engineering and Aerospace System with the Singapore Institute of Technology (University of Glasgow) and SIM University.

UNIVERSITY EXPERIENCE AT SUTD
Final-year students of all SP engineering diplomas have the opportunity to attend a first year module ‘Introduction to Design’ at Singapore University of Technology & Design (SUTD). Apart from prioritised admission to SUTD and scholarship, they get to work on projects supervised by professors at the International Design Centre and the Temasek Laboratories.

Diploma in Aeronautical Engineering (DARE)
The Diploma in Aeronautical Engineering (DARE) is the first aero diploma course in Singapore. It was launched in 2002 in response to the demands for qualified aircraft maintenance engineers in the rapidly expanding aerospace maintenance, repair and overhaul (MRO) industry in Singapore and the Asia-Pacific region.

As an ST Engineering Aerospace SAR147 B1 & B2 training partner, this course will prepare you well to work in the aerospace industry as well as to further your studies in local and overseas universities.

Students undergo pragmatic hands-on lessons in state-of-the-art facilities that simulate a real aviation work environment. Training facilities includes the Hawker 700, the King Air B90, 2 other aircrafts and 2 full motion simulators, one of which is developed and built in-house. Teaching and Learning is based on the CDIO (Conceive-Design-Implement-Operate) framework and Design Thinking methodology.

There will be an 22 weeks internship or final year project at/with reputable local aerospace companies.

The Curriculum is mapped to Aerospace Engineering and Air Transport Skills framework.

Students in the DARE course can also choose to sit for the Singapore Airworthiness Requirements (SAR) 66 basic papers conducted by the Civil Aviation Authority of Singapore (CAAS) as the curriculum contents for both are similar.
MAE works closely with the aerospace industry and the Civil Aviation Authority of Singapore (CAAS) to ensure the curriculum is relevant and robust. Our premier status has forged sturdy bonds with prestigious aerospace organisations including the Republic of Singapore Air Force, Singapore Airlines Engineering Company, Singapore Technologies Aerospace and Pratt & Whitney.

CAREERS AND FURTHER STUDIES
Graduates of the DARE course are well-positioned to be employed in the aerospace and aviation industry. Career opportunities include aircraft/component maintenance, design and development for aircraft modification, prototype and production testing, material requirements planning, project management, manufacturing and R&D.

Graduates also have the option of pursuing degrees at local and overseas universities. Besides advanced standing offered by NUS and NTU, the Singapore Institute of Technology (University of Glasgow) is offering eligible DARE graduates direct entry into the third year of its Bachelor of Engineering (Honours) in Aeronautical Engineering and Bachelor of Engineering (Honours) in Aerospace Systems.

COURSE MODULES

Diploma in Bioengineering (DBEN)

Since the inception of the Biomedical Science Initiative in 2000, the Biomedical Science (BMS) sector has enjoyed buoyant growth in Singapore. Today, there are over 30 world-class medical technology and bio-manufacturing companies in Singapore.

The Diploma in Bioengineering (DBEN) course provides a balanced grounding in mechanical engineering and life sciences to help graduates develop skills essential to producing viable bioengineering solutions. This multi-disciplinary approach makes the DBEN a valuable asset to the rapidly advancing biomedical industry.

<table>
<thead>
<tr>
<th>COURSE MODULES</th>
<th>FULL-TIME FIRST YEAR HOURS</th>
<th>FULL-TIME SECOND YEAR HOURS</th>
<th>FULL-TIME THIRD YEAR HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET1200</td>
<td>Electrical Engineering Principles</td>
<td>60</td>
<td>ET0176 Aircraft Electrical &amp; Instrument Systems</td>
</tr>
<tr>
<td>ET1201</td>
<td>Electronic Engineering Principles</td>
<td>60</td>
<td>LC0059 Design Thinking for Social Innovation</td>
</tr>
<tr>
<td>LC0554</td>
<td>Communicating for Personal &amp; Team Effectiveness</td>
<td>30</td>
<td>ME2103 Aircraft Maintenance Practices</td>
</tr>
<tr>
<td>LC0555</td>
<td>Communicating for Project Effectiveness</td>
<td>30</td>
<td>ME2201 Computer-Aided Design (Aeronautical)</td>
</tr>
<tr>
<td>LC8037</td>
<td>Critical and Analytical Thinking</td>
<td>30</td>
<td>ME2301 Engineering Materials II</td>
</tr>
<tr>
<td>LC8038</td>
<td>Narrative Thinking</td>
<td>30</td>
<td>ME2401 Thermofluids II</td>
</tr>
<tr>
<td>ME1521</td>
<td>Introduction to Engineering</td>
<td>90</td>
<td>ME2501 Fundamentals of Flight</td>
</tr>
<tr>
<td>ME1522</td>
<td>Mechanics I</td>
<td>60</td>
<td>ME2601 Aircraft Structures</td>
</tr>
<tr>
<td>ME1523</td>
<td>Computer-Aided Drafting</td>
<td>60</td>
<td>ME2701 Air Legislation &amp; Management</td>
</tr>
<tr>
<td>ME1524</td>
<td>Engineering Materials I</td>
<td>60</td>
<td>MS6260 Statistics and Analytics for Engineers</td>
</tr>
<tr>
<td>ME1525</td>
<td>Thermofluids I</td>
<td>60</td>
<td>MS6261 Engineering Mathematics II</td>
</tr>
<tr>
<td>MS6140</td>
<td>Basic Mathematics</td>
<td>60</td>
<td>SP202A Education and Career Guidance 2</td>
</tr>
<tr>
<td>MS6151</td>
<td>Engineering Mathematics I</td>
<td>60</td>
<td>Elective Module 1</td>
</tr>
<tr>
<td>MS6508</td>
<td>Computer Programming</td>
<td>60</td>
<td>Elective Module 2</td>
</tr>
<tr>
<td>SP090A</td>
<td>Education and Career Guidance 1</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

Electives

The SP elective framework offers students options to pursue their passion and/or meet different career needs, and is an integral part of the holistic education we seek to provide to our students. The learning experiences of this elective framework help students in their development as self-directed, versatile, life-long learners, which are essential in today’s volatile and changing societal as well as occupational landscape.

For a list of electives offered, please visit www.sp.edu.sg

COURSES

Electives

The SP elective framework offers students options to pursue their passion and/or meet different career needs, and is an integral part of the holistic education we seek to provide to our students. The learning experiences of this elective framework help students in their development as self-directed, versatile, life-long learners, which are essential in today’s volatile and changing societal as well as occupational landscape.

For a list of electives offered, please visit www.sp.edu.sg

COURSES

Electives

The SP elective framework offers students options to pursue their passion and/or meet different career needs, and is an integral part of the holistic education we seek to provide to our students. The learning experiences of this elective framework help students in their development as self-directed, versatile, life-long learners, which are essential in today’s volatile and changing societal as well as occupational landscape.

For a list of electives offered, please visit www.sp.edu.sg

COURSES

Electives

The SP elective framework offers students options to pursue their passion and/or meet different career needs, and is an integral part of the holistic education we seek to provide to our students. The learning experiences of this elective framework help students in their development as self-directed, versatile, life-long learners, which are essential in today’s volatile and changing societal as well as occupational landscape.

For a list of electives offered, please visit www.sp.edu.sg

COURSES

Electives
The Diploma in Mechanical Engineering (DME) is the first full-time engineering diploma course offered in Singapore. Since 1958, it remains the de facto first-choice diploma course in mechanical engineering.

The DME course provides students with a firm foundation in a wide range of engineering disciplines. At the end of Year 2, students will apply for one of the six specialisations:

- Aerospace Technology
- Energy Systems
- Facilities Management
- Machine Design
- Precision Engineering
- Product Realisation

COLLABORATIONS AND PARTNERSHIPS
DBEN has close collaborations with the Singapore Health Services Pte Ltd, National Healthcare Group, and Non-Governmental Organisations (NGOs) in human interface technology and assistive technology. DBEN students participating in such collaborations get to work closely with doctors and scientists to improve health standards and quality of life for the infirm.

CAREERS AND FURTHER STUDIES
Career opportunities in the biomedical science industry include manufacturing, testing and quality control of biomedical products, design and development of biomedical devices, maintenance and commissioning of biomedical equipment and systems.

Graduates also have the option of pursuing degrees at local and overseas universities. Many were offered advanced standing.

The Diploma in Mechanical Engineering (DME) is the first full-time engineering diploma course offered in Singapore. Since 1958, it remains the de facto first-choice diploma course in mechanical engineering.

The DME course provides students with a firm foundation in a wide range of engineering disciplines. At the end of Year 2, students will apply for one of the six specialisations:

- Aerospace Technology
- Energy Systems
- Facilities Management
- Machine Design
- Precision Engineering
- Product Realisation

COLLABORATIONS AND PARTNERSHIPS
DBEN has close collaborations with the Singapore Health Services Pte Ltd, National Healthcare Group, and Non-Governmental Organisations (NGOs) in human interface technology and assistive technology. DBEN students participating in such collaborations get to work closely with doctors and scientists to improve health standards and quality of life for the infirm.

CAREERS AND FURTHER STUDIES
Career opportunities in the biomedical science industry include manufacturing, testing and quality control of biomedical products, design and development of biomedical devices, maintenance and commissioning of biomedical equipment and systems.

Graduates also have the option of pursuing degrees at local and overseas universities. Many were offered advanced standing.

The Diploma in Mechanical Engineering (DME) is the first full-time engineering diploma course offered in Singapore. Since 1958, it remains the de facto first-choice diploma course in mechanical engineering.

The DME course provides students with a firm foundation in a wide range of engineering disciplines. At the end of Year 2, students will apply for one of the six specialisations:

- Aerospace Technology
- Energy Systems
- Facilities Management
- Machine Design
- Precision Engineering
- Product Realisation

COLLABORATIONS AND PARTNERSHIPS
DBEN has close collaborations with the Singapore Health Services Pte Ltd, National Healthcare Group, and Non-Governmental Organisations (NGOs) in human interface technology and assistive technology. DBEN students participating in such collaborations get to work closely with doctors and scientists to improve health standards and quality of life for the infirm.

CAREERS AND FURTHER STUDIES
Career opportunities in the biomedical science industry include manufacturing, testing and quality control of biomedical products, design and development of biomedical devices, maintenance and commissioning of biomedical equipment and systems.

Graduates also have the option of pursuing degrees at local and overseas universities. Many were offered advanced standing.

The Diploma in Mechanical Engineering (DME) is the first full-time engineering diploma course offered in Singapore. Since 1958, it remains the de facto first-choice diploma course in mechanical engineering.

The DME course provides students with a firm foundation in a wide range of engineering disciplines. At the end of Year 2, students will apply for one of the six specialisations:

- Aerospace Technology
- Energy Systems
- Facilities Management
- Machine Design
- Precision Engineering
- Product Realisation

COLLABORATIONS AND PARTNERSHIPS
DBEN has close collaborations with the Singapore Health Services Pte Ltd, National Healthcare Group, and Non-Governmental Organisations (NGOs) in human interface technology and assistive technology. DBEN students participating in such collaborations get to work closely with doctors and scientists to improve health standards and quality of life for the infirm.

CAREERS AND FURTHER STUDIES
Career opportunities in the biomedical science industry include manufacturing, testing and quality control of biomedical products, design and development of biomedical devices, maintenance and commissioning of biomedical equipment and systems.

Graduates also have the option of pursuing degrees at local and overseas universities. Many were offered advanced standing.

The Diploma in Mechanical Engineering (DME) is the first full-time engineering diploma course offered in Singapore. Since 1958, it remains the de facto first-choice diploma course in mechanical engineering.

The DME course provides students with a firm foundation in a wide range of engineering disciplines. At the end of Year 2, students will apply for one of the six specialisations:

- Aerospace Technology
- Energy Systems
- Facilities Management
- Machine Design
- Precision Engineering
- Product Realisation

COLLABORATIONS AND PARTNERSHIPS
DBEN has close collaborations with the Singapore Health Services Pte Ltd, National Healthcare Group, and Non-Governmental Organisations (NGOs) in human interface technology and assistive technology. DBEN students participating in such collaborations get to work closely with doctors and scientists to improve health standards and quality of life for the infirm.

CAREERS AND FURTHER STUDIES
Career opportunities in the biomedical science industry include manufacturing, testing and quality control of biomedical products, design and development of biomedical devices, maintenance and commissioning of biomedical equipment and systems.

Graduates also have the option of pursuing degrees at local and overseas universities. Many were offered advanced standing.

The Diploma in Mechanical Engineering (DME) is the first full-time engineering diploma course offered in Singapore. Since 1958, it remains the de facto first-choice diploma course in mechanical engineering.

The DME course provides students with a firm foundation in a wide range of engineering disciplines. At the end of Year 2, students will apply for one of the six specialisations:

- Aerospace Technology
- Energy Systems
- Facilities Management
- Machine Design
- Precision Engineering
- Product Realisation

COLLABORATIONS AND PARTNERSHIPS
DBEN has close collaborations with the Singapore Health Services Pte Ltd, National Healthcare Group, and Non-Governmental Organisations (NGOs) in human interface technology and assistive technology. DBEN students participating in such collaborations get to work closely with doctors and scientists to improve health standards and quality of life for the infirm.

CAREERS AND FURTHER STUDIES
Career opportunities in the biomedical science industry include manufacturing, testing and quality control of biomedical products, design and development of biomedical devices, maintenance and commissioning of biomedical equipment and systems.

Graduates also have the option of pursuing degrees at local and overseas universities. Many were offered advanced standing.

The Diploma in Mechanical Engineering (DME) is the first full-time engineering diploma course offered in Singapore. Since 1958, it remains the de facto first-choice diploma course in mechanical engineering.

The DME course provides students with a firm foundation in a wide range of engineering disciplines. At the end of Year 2, students will apply for one of the six specialisations:

- Aerospace Technology
- Energy Systems
- Facilities Management
- Machine Design
- Precision Engineering
- Product Realisation

COLLABORATIONS AND PARTNERSHIPS
DBEN has close collaborations with the Singapore Health Services Pte Ltd, National Healthcare Group, and Non-Governmental Organisations (NGOs) in human interface technology and assistive technology. DBEN students participating in such collaborations get to work closely with doctors and scientists to improve health standards and quality of life for the infirm.

CAREERS AND FURTHER STUDIES
Career opportunities in the biomedical science industry include manufacturing, testing and quality control of biomedical products, design and development of biomedical devices, maintenance and commissioning of biomedical equipment and systems.

Graduates also have the option of pursuing degrees at local and overseas universities. Many were offered advanced standing.

The Diploma in Mechanical Engineering (DME) is the first full-time engineering diploma course offered in Singapore. Since 1958, it remains the de facto first-choice diploma course in mechanical engineering.

The DME course provides students with a firm foundation in a wide range of engineering disciplines. At the end of Year 2, students will apply for one of the six specialisations:

- Aerospace Technology
- Energy Systems
- Facilities Management
- Machine Design
- Precision Engineering
- Product Realisation

COLLABORATIONS AND PARTNERSHIPS
DBEN has close collaborations with the Singapore Health Services Pte Ltd, National Healthcare Group, and Non-Governmental Organisations (NGOs) in human interface technology and assistive technology. DBEN students participating in such collaborations get to work closely with doctors and scientists to improve health standards and quality of life for the infirm.

CAREERS AND FURTHER STUDIES
Career opportunities in the biomedical science industry include manufacturing, testing and quality control of biomedical products, design and development of biomedical devices, maintenance and commissioning of biomedical equipment and systems.

Graduates also have the option of pursuing degrees at local and overseas universities. Many were offered advanced standing.
**COLLABORATIONS AND PARTNERSHIPS**
MAE works closely with small and medium enterprises (SMEs), large multinational corporations (MNCs) and government agencies to design and manufacture products and services that meet operational and business needs.

**CAREERS AND FURTHER STUDIES**
Career opportunities abound in the aerospace, energy, precision engineering, electronics, machine and product design, engineering services, oil and gas, petrochemical and hospitality industries. Graduates also have the option of pursuing degrees at local and overseas universities. Many are offered advanced standing.

**COURSE MODULES**

<table>
<thead>
<tr>
<th>FULL-TIME</th>
<th>FIRST YEAR</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET1200</td>
<td>Electrical Engineering Principles</td>
<td>60</td>
</tr>
<tr>
<td>ET1201</td>
<td>Electronic Engineering Principles</td>
<td>60</td>
</tr>
<tr>
<td>LC5554</td>
<td>Communicating for Personal &amp; Team Effectiveness</td>
<td>30</td>
</tr>
<tr>
<td>LC5556</td>
<td>Communicating for Project Effectiveness</td>
<td>30</td>
</tr>
<tr>
<td>LC8007</td>
<td>Critical and Analytical Thinking</td>
<td>30</td>
</tr>
<tr>
<td>LC8008</td>
<td>Narrative Thinking</td>
<td>30</td>
</tr>
<tr>
<td>ME1201</td>
<td>Introduction to Engineering</td>
<td>30</td>
</tr>
<tr>
<td>ME1301</td>
<td>Mechanics I</td>
<td>60</td>
</tr>
<tr>
<td>ME1302</td>
<td>Computer-Aided Drafting</td>
<td>60</td>
</tr>
<tr>
<td>ME1303</td>
<td>Engineering Materials I</td>
<td>60</td>
</tr>
<tr>
<td>ME1304</td>
<td>Thermofluids I</td>
<td>60</td>
</tr>
<tr>
<td>MS6401</td>
<td>Basic Mathematics</td>
<td>60</td>
</tr>
<tr>
<td>MS6501</td>
<td>Engineering Mathematics I</td>
<td>60</td>
</tr>
<tr>
<td>MS6508</td>
<td>Computer Programming</td>
<td>60</td>
</tr>
<tr>
<td>SP101A</td>
<td>Education and Career Guidance I</td>
<td>15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FULL-TIME</th>
<th>SECOND YEAR</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC8009/10</td>
<td>Design Thinking for Social Innovation</td>
<td>45</td>
</tr>
<tr>
<td>ME2301</td>
<td>Computer-Aided Machining</td>
<td>90</td>
</tr>
<tr>
<td>ME2302</td>
<td>Design and Build</td>
<td>120</td>
</tr>
<tr>
<td>ME2303</td>
<td>Mechanics II</td>
<td>60</td>
</tr>
<tr>
<td>ME2304</td>
<td>Engineering Materials II</td>
<td>60</td>
</tr>
<tr>
<td>ME2305</td>
<td>Thermofluids II</td>
<td>60</td>
</tr>
<tr>
<td>ME2306</td>
<td>Industrial Automation</td>
<td>60</td>
</tr>
<tr>
<td>ME2307</td>
<td>Instrumentation and Control</td>
<td>60</td>
</tr>
<tr>
<td>ME2308</td>
<td>Industrial Engineering</td>
<td>60</td>
</tr>
<tr>
<td>MS6260</td>
<td>Statistics and Analytics for Engineers</td>
<td>60</td>
</tr>
<tr>
<td>MS6261</td>
<td>Engineering Mathematics II</td>
<td>60</td>
</tr>
<tr>
<td>Elective Module 1</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Elective Module 2</td>
<td>60</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FULL-TIME</th>
<th>THIRD YEAR</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC9057</td>
<td>Communicating for Professional Effectiveness</td>
<td>30</td>
</tr>
<tr>
<td>ME3301</td>
<td>Mechanics II</td>
<td>60</td>
</tr>
<tr>
<td>ME3401</td>
<td>Engineering Thermodynamics</td>
<td>60</td>
</tr>
<tr>
<td>ME3501</td>
<td>Fluid Mechanics</td>
<td>60</td>
</tr>
<tr>
<td>ME3801</td>
<td>Quality Engineering and Management</td>
<td>60</td>
</tr>
<tr>
<td>ME3802</td>
<td>Organisational Management</td>
<td>45</td>
</tr>
<tr>
<td>ME3803</td>
<td>Workplace Safety and Health Management</td>
<td>45</td>
</tr>
<tr>
<td>IE5001</td>
<td>Internship Equivalent (industry in-campus project)</td>
<td>88</td>
</tr>
<tr>
<td>LC8007</td>
<td>Internship Programme (22 weeks)</td>
<td>88</td>
</tr>
<tr>
<td>ME3201</td>
<td>Aircraft Systems</td>
<td>90</td>
</tr>
<tr>
<td>ME3301</td>
<td>Aerospace Materials</td>
<td>60</td>
</tr>
<tr>
<td>ME3421</td>
<td>Refrigeration and Air-conditioning</td>
<td>60</td>
</tr>
<tr>
<td>ME3422</td>
<td>Renewable Energy and Applications</td>
<td>60</td>
</tr>
<tr>
<td>ME3901</td>
<td>Facilities Management Option</td>
<td>60</td>
</tr>
<tr>
<td>ME3902</td>
<td>Facilities Maintenance Engineering and Services</td>
<td>60</td>
</tr>
<tr>
<td>ME3903</td>
<td>Machine Design Option</td>
<td>60</td>
</tr>
<tr>
<td>ME3904</td>
<td>Tooling Engineering</td>
<td>60</td>
</tr>
<tr>
<td>ME3905</td>
<td>System Integration</td>
<td>60</td>
</tr>
<tr>
<td>ME3906</td>
<td>Precision Engineering Option</td>
<td>60</td>
</tr>
<tr>
<td>ME3907</td>
<td>Advanced Machining and Metrology</td>
<td>60</td>
</tr>
<tr>
<td>ME3908</td>
<td>Tooling Engineering</td>
<td>60</td>
</tr>
<tr>
<td>ME3909</td>
<td>Product Design and Development</td>
<td>60</td>
</tr>
<tr>
<td>ME3910</td>
<td>Elective Module 3</td>
<td>60</td>
</tr>
</tbody>
</table>

**Full-time Diploma in Mechatronics & Robotics (DMRO)**

SP launched Singapore’s first Mechatronics diploma course in 1991 to meet the niche demand for cross disciplinary Engineers in precision engineering work.

With the emergence of Advanced Manufacturing and Industry 4.0, the course has since diversified into the fields of collaborative robotics, autonomous electric vehicles and smart automation equipping our graduates with the relevant skills and mind-set to meet challenges of the future. Training has gone beyond the core areas of Mechanical Engineering and Electronics to include a plethora of skills in IT, programming, analytics and design.

As a DMRO student, you will have the opportunity to work with renowned industry partners during the Internship Programme/Project and participate in competitions locally and internationally.

In DMRO, we turn dreams and aspirations into reality!

**Electives**
The SP elective framework offers students options to pursue their passion and/or meet different career needs, and is an integral part of the holistic education we seek to provide to our students. The learning experiences of this elective framework help students in their development as self-directed, versatile, life-long learners, who are essential in today’s volatile and changing societal and occupational landscape.

For a list of electives offered, please visit [www.sp.edu.sg](http://www.sp.edu.sg)
COLLABORATIONS AND PARTNERSHIPS
MAE works closely with small and medium enterprises (SMEs), large multinational corporations (MNCs) and government agencies to design and manufacture products and services to meet operational and business needs.

CAREERS AND FURTHER STUDIES
Career opportunities in the complex manufacturing industry include design, development, operation and management of multi-disciplinary systems, ranging from automation and robotics systems to micro-electromechanical systems in the aerospace, semi-conductor and petro-chemical industries.

Graduates also have the option of pursuing degrees at local and overseas universities. Many are offered advanced standing.

COURSE MODULES

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET1200 Electrical Engineering Principles</td>
<td>60</td>
</tr>
<tr>
<td>ET1201 Electronic Engineering Principles</td>
<td>60</td>
</tr>
<tr>
<td>LC0514 Communicating for Personal &amp; Team Effectiveness</td>
<td>30</td>
</tr>
<tr>
<td>LC0516 Communicating for Project Effectiveness</td>
<td>30</td>
</tr>
<tr>
<td>LC8007 Critical and Analytical Thinking</td>
<td>30</td>
</tr>
<tr>
<td>LC8008 Narrative Thinking</td>
<td>30</td>
</tr>
<tr>
<td>ME1021 Introduction to Engineering</td>
<td>90</td>
</tr>
<tr>
<td>ME7990 Mechanics I</td>
<td>60</td>
</tr>
<tr>
<td>ME1301 Engineering Materials I</td>
<td>60</td>
</tr>
<tr>
<td>ME1401 Thermofluids I</td>
<td>60</td>
</tr>
<tr>
<td>ME1501 Elective Module 1</td>
<td>60</td>
</tr>
<tr>
<td>ME1601 Elective Module 2</td>
<td>60</td>
</tr>
<tr>
<td>ME1701 Computer-Aided Drafting</td>
<td>60</td>
</tr>
<tr>
<td>ME1801 Introduction to Engineering</td>
<td>90</td>
</tr>
<tr>
<td>MS6500 Basic Mathematics</td>
<td>60</td>
</tr>
<tr>
<td>MS6611 Engineering Mathematics I</td>
<td>60</td>
</tr>
<tr>
<td>MS6659 Computer Programming</td>
<td>60</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SECOND YEAR</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC1066 Design &amp; Fabrication Project</td>
<td>120</td>
</tr>
<tr>
<td>ET1405 Electronics Devices</td>
<td>75</td>
</tr>
<tr>
<td>ET1406 Microcontroller Applications</td>
<td>90</td>
</tr>
<tr>
<td>LC8009 Design Thinking for Social Innovation</td>
<td>45</td>
</tr>
<tr>
<td>ME2202 Computer-Aided Machining</td>
<td>60</td>
</tr>
<tr>
<td>ME2301 Mechanics II</td>
<td>60</td>
</tr>
<tr>
<td>ME2301 Engineering Materials II</td>
<td>60</td>
</tr>
<tr>
<td>ME2401 Thermofluids II</td>
<td>60</td>
</tr>
<tr>
<td>ME2401 Industrial Automation</td>
<td>60</td>
</tr>
<tr>
<td>MS6260 Statistics and Analytics for Engineers</td>
<td>60</td>
</tr>
<tr>
<td>MS6261 Engineering Mathematics II</td>
<td>60</td>
</tr>
<tr>
<td>MS6660 Elective Module 1</td>
<td>60</td>
</tr>
<tr>
<td>MS6661 Elective Module 2</td>
<td>60</td>
</tr>
<tr>
<td>MS6662 Elective Module 3</td>
<td>60</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>THIRD YEAR</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC1406 Circuit Theory</td>
<td>75</td>
</tr>
<tr>
<td>ET1413 Systems &amp; Control</td>
<td>75</td>
</tr>
<tr>
<td>LC8057 Communicating for Professional Effectiveness</td>
<td>30</td>
</tr>
<tr>
<td>ME3301 Mechanics III</td>
<td>60</td>
</tr>
<tr>
<td>ME3401 Programmable Logic Controllers</td>
<td>60</td>
</tr>
<tr>
<td>ME3501 Robotic Integration &amp; Programming</td>
<td>60</td>
</tr>
<tr>
<td>ME3601 Organisational Management</td>
<td>45</td>
</tr>
<tr>
<td>ME3706 Workplace Safety and Health Management</td>
<td>45</td>
</tr>
<tr>
<td>IE5001 Internship Equivalent (industry in-campus project)</td>
<td>880</td>
</tr>
<tr>
<td>IC5001 Internship Programme (22 weeks)</td>
<td>880</td>
</tr>
<tr>
<td>Elective Module 3</td>
<td>60</td>
</tr>
</tbody>
</table>

Common Engineering Programme (CEP)

The Common Engineering Programme (DCEP) is jointly offered by the School of Mechanical & Aeronautical Engineering and School of Electrical & Electronic Engineering.

The DCEP is specially designed for students who are keen in engineering but do not know which discipline to major in. It comprises a common first semester where students take a basket of modules to help them discover their salient interests and strengths.

Electives
The SP elective framework offers students options to pursue their passions and to meet different career needs, and it is an integral part of the holistic education we seek to provide to our students. The learning experiences of the elective framework help students in their development as self-directed, versatile lifelong learners, which are essential in today’s volatile and changing occupational landscape.

For a list of electives offered, please visit www.sp.edu.sg

Singapore Polytechnic Prospectus 2019/20

Singapore Polytechnic Prospectus 2019/20
At the end of the first semester, students will apply for one of eight courses to specialise in.

From the School of Mechanical & Aeronautical Engineering
- Diploma in Aeronautical Engineering (DARE)
- Diploma in Bioengineering (DBEN)
- Diploma in Mechanical Engineering (DME)
- Diploma in Mechatronics & Robotics (DMRO)

From the School of Electrical & Electronic Engineering
- Diploma in Aerospace Electronics (DAESE)
- Diploma in Computer Engineering (DCPE)
- Diploma in Engineering with Business (DEB)
- Diploma in Electrical & Electronic Engineering (DEEEE)

Electives
- The SP elective framework offers students options to pursue their passion and to meet different career needs, and is an integral part of the holistic education we seek to provide to our students.
- The learning experiences of the elective framework help students in their development as self-directed, versatile, life-long learners, which are essential in today’s volatile and changing societal as well as occupational landscape.

For more information on Part-Time Diploma Courses, you may refer to www.pace.sp.edu.sg.
CNC MACHINE SHOP
- 2-axis CNC Turning
- 3-axis CNC Milling
- 9-axis CNC Turn-Mill applications
- CAD/CAM systems (CATIA, AutoDesk, Inventor, Pro-Engineer, SolidWorks and MasterCAM)
- High resolution CMM with 3D & PMI capabilities
- CNC 3-axis Mill (Campro CPV550)
- CNC Turn 350 (DMG Mori Eco)
- Gauges (block, dial, height, electronic, pneumatic)
- Micrometers (digital, 3-point)
- Multi-gauging system measurement
- Optical profiler and quick scope measurement
- Precision machining up to IT-7 standard
- CNC Lathe cum Mill (DMG CTX310)

ENGINEERING & PROJECT WORKSHOP
- Centre lathes
- Mini-radial arm and bench drilling
- Pressed brake bender
- Sheetmetal Shaping machines
- Universal milling machine
- Vertical band saw machines
- Router Machine
- Laser Cutting Machine
- Water-jet Cutting Machine
- CNC Milling Machine
- Sand Blasting Machine
- Spray Painting Booth
- 3D Printers

ENGINEERING WORKSPACE
- Bench and pillar type drilling machines
- Measuring instruments
- Surface grinders

FLUID MECHANICS LABORATORY
- Fluid friction measurement (pipes, valves, fittings)
- Pump characteristics test (centrifugal, plunger)
- Training sets (industrial hydraulics, electro hydraulics, proportional and servo valves)

INDUSTRIAL AUTOMATION & ROBOTICS LABORATORY
- Behaviour control programmer, Matrix Flowcode, Motion editor, Robot terminal, Robotino View software
- CX Programmer
- Digital oscilloscope
- Festo Robotino
- Matrix microcontroller development board
- Matrix HPACT actuators training panel
- Modular Production System
- Programmable Logic Controllers
- Robots Biologic expert robot kit
- Training sets (pneumatics, electro pneumatics, PLC)
- 3-in-1 Laser Plotter
- Handling Station with Robots

INTEGRATED PROJECT CENTRE
- 3D Studio Max product design software
- Roland RIP 3D rapid prototyping software
- Pro Concept 2D to 3D design software
- Cinema 4D software
- Windchill PD Solution software

MACHINE DEVELOPMENT CENTRE
- Solid-works CAD
- AutoCAD
- 3D Printers
- CNC Measurement Microscope System
- Tiosop Die-Sinking Electric Discharge Machine
- Hot Press
- Sand blasting, powder spraying for thermal coating
- Scanning electron microscope
- Tensile, hardness, impact, non-destructive, wear, corrosion testing

MECHANICS LABORATORY
- Electrical strain gauge installation and calibration
- Load and friction measurement
- Mechanical vibration rigs and measurement
- PASCO, Lab View, MD Solids, Virtual Bench, Picoscope software
- Simple machines and power transmission elements
- Static and dynamic balancing rigs
- Stress measurement in beams, shafts and shells
- Whole-field stress determination system

QUALITY MANAGEMENT LABORATORY
- Design of experiment kits
- ISO Standards for Quality Management System
- JIT simulation games sets for scheduling
- QFD Designer v4.0 and SPC IV software
- SAP and MRP software
- Sound level and light meters for ergonomics study
- Statistical control charting kit
- Time study videos and timing exercises

RAPID PROTOTYPING LABORATORY
- 3D Z Printer 450 rapid prototyping machine with de-powdering unit
- Fortus 360mc rapid prototyping machine and Insight software
- Kevvox desktop 3D Printer and K-Studio software
- Mojo 3D Printer

REFRIGERATION & AIR-CONDITIONING LABORATORY
- Ductwork and building automation systems
- Laser particle counter
- Manometers, anerometers and sound meters
- Room air-conditioners and refrigerators

PLANT ENGINEERING LABORATORY
- Borescope inspection systems
- Mechanical Lift Training System
- Motion simulators
- Noise measurement
- Oil analysis and particle measurement
- Plant maintenance, condition monitoring, industrial safety and health software
- Shaft and pulley alignment with laser
- Vibration measurement and spectrum analysis
- Vibration scanning and balancing

COMPOSITE TECHNOLOGY LABORATORY
- Composite Technology Laboratory
- Water-jet Cutting Machine
- CNC Router
- CNC Stitching Machine
- IS1100 Shearography System
- Fibre Placement Machine
- Vibration Monitoring Analyzer
- Vacuum Resin Transfer Molding System
- Handling Station with Robots
- 3-in-1 Laser Plotter
- Mojo 3D Printer
- Fortus 360mc rapid prototyping machine with de-powdering unit
- Kevvox desktop 3D Printer and K-Studio software
- Mojo 3D Printer

Media, Arts & Design
Applied Drama & Psychology
Creative Writing For TV & New Media
Digital Animation
Experience & Communication Design
Game Design & Development
Media & Communication Technology
Music & Audio Technology
Visual Effects & Motion Graphics
Media has the power to influence people’s perceptions and ideas. The Arts ignite our senses and expand our minds. Design can change the way we shape, perceive, understand, enrich and experience life.

In a world that is volatile and complex, imagination can transform workplaces, communities and so, the world itself. Creativity and imagination opens up pathways to careers in the fields of media, arts and design.

At the Media, Arts & Design School, we are MAD about:

- Developing creativity using pedagogical methods – from studio-based learning to out-of-classroom learning activities
- Tapping the experience of our lecturers – all industry experts – to equip students with skills and knowledge to solve problems
- Providing learning spaces modelled after real-world work environments for authentic learning
- Collaborating with industry partners and academic institutions to prepare students for employment

If you see yourself working in the creative industry in the future, be it in the fields of media, arts or design, then this is the place for you.

Here, our students are in the business of taking what they imagine – and turning it into reality.

---

Do you want to help others share their stories? How can you create transformative encounters when these stories are told? How can their stories change lives or influence communities for the better?

The Diploma in Applied Drama & Psychology journeys beyond performance, integrating the tools of drama with an understanding of psychology. The result is a powerful engine for education, social intervention and change.

At MAD, authentic learning means extending the boundaries of the classroom. Connect with different communities through industry-based assessments. Design programmes to meet the specific needs of participants — from children and youths to seniors.

IN THIS COURSE, YOU WILL:
- Draw on the expertise of leading dramatists through our Artist-in-Residence scheme and master classes.
- Learn from practitioners in drama/social service/psychology fields.
- Work with communities from a wide range of settings, such as schools and social service agencies. Intern with local drama companies, schools, government agencies and social/community services.
- Bring different stories to life in BlackBox, our drama space with unlimited potential to transform itself, its players and its audience.

YOUR FUTURE
Lift off into a successful career. Your skills in combining drama techniques with an understanding of the human psyche to reach out to communities will put you in high demand. We open the door to a variety of rewarding careers in the education and social/community services sectors:

- Drama Educator
- Drama Facilitator
- Assistant Teacher
- Community Worker
- Programme Executive

Upon graduation, you may pursue a degree in Theatre Studies, Applied Drama, Social Work, Early Childhood / Special Education, Psychology or Arts and Social Sciences.

DADP graduates have been accepted into degree programmes at local and foreign universities. Some of these universities grant generous exemptions and advanced standing to our graduates.

---

*I*All full-time diploma students are required to take two compulsory Education and Career Guidance Modules in SP. Students will take SP101A: Education and Career Guidance 1 – Personal Development (15 hours) in their first year. In their second year, students will take SP201A: Education and Career Guidance 2 – Career Development (30 hours).

*I*All students are required to take one compulsory Sports for Life (SFL) module for one semester in their first year in SP. In their second and third year, students may sign up for SFL module as an elective.
COURSE MODULES

FULL-TIME FIRST YEAR HOURS
LC1060 Critical and Analytical Thinking 30
MD7004 Directed Drama 90
MD7005 Drama Conventions 45
MD7004 Industry Immersion 30
MD7112 Introduction to Applied Drama 90
MD7011 Introduction to Drama and Performance 90
MD7007 Introduction to Psychology 90
LC1061 Narrative Thinking 30
MD7112 Lifespan Psychology 90
MD7013 Social Psychology 60
MD7012 Understanding Research and Ethics 45

FULL-TIME SECOND YEAR HOURS
MD7204 Community Psychology 60
MD7201 Drama-in-Education 60
LC8062 Design Thinking for Social Innovation 45
MD7204 Forum Theatre 75
MD7207 Methods of Inquiry 60
MD7201 Process Drama 60
MD7205 Psychology-in-Education 90
MD7202 Theatre-in-Education 90
Options (Choose two)

MD7208 Working with Children (Story Drama & Developmental Issues in Childhood) 90
MD7209 Working with Elderly (Reminiscence Theatre & Psychological Perspectives in Ageing) 90
MD7209 Working with Youth (Participatory Approaches & Adolescent Psychology) 90

FULL-TIME THIRD YEAR HOURS
LC0857 Communicating for Project Effectiveness 30
MD7302 Cultural Diversity 45
MD7301 Graduation Project 180
MD7303 Grants, Proposals and Evaluation 45
IB8007 Internship 180

Electives
The SP elective framework offers students options to pursue their passion and/or meet different career needs, and is an integral part of the holistic education we seek to provide to our students. The learning experiences of this elective framework help students in their development as self-directed, versatile, lifelong learners, which are essential in today’s volatile and changing societal as well as occupational landscapes.

For a list of electives offered, please visit www.sp.edu.sg

Diploma in Creative Writing for TV & New Media (DTVM)

Have you ever dreamt of turning your love of words into a fulfilling career in television and digital media? This may involve scriptwriting, journalism, documentary production, professional blogging or podcasting. The Diploma in Creative Writing for TV & New Media (DTVM) helps you turn inspiration into success — to dream it, write it, make it.

How do words combine with pictures, video and sound to tell stories? How will you craft a message that resonates with an entire generation — maybe even several? DTVM develops and hones your ability to find, shape and realise your stories, fine-tuning them into polished messages for television.

Here at MAD, authentic learning means taking your story from the drawing board to the audience. Produce documentaries, TV scripts, webisodes and other types of content for digital media platforms.

IN THIS COURSE, YOU WILL:
lines Be inspired. Find your muse in The Writers’ Room, our unique space for dreaming and writing. Through our master classes, network with seasoned journalists, scriptwriters, filmmakers, animators, comic strip artists and other media professionals from Singapore and around the world.
lines Leave the classroom. Record your news, drama, comedy, reality show or infotainment. Travel overseas to film a documentary as an assignment. Intern with reputable media networks or related companies.
lines Pitch your programmes to industry experts and, if selected, watch them come alive on TV.
lines Join us — Dream it. Write it. Make it.

YOUR FUTURE

Lift off into a successful career. Your skills
in original content creation will be highly marketable. We open the door to a variety of rewarding career options in various industries such as media and publishing, government and community:

- Writer for Web, Radio and TV
- Journalist
- Content Producer
- Scriptwriter
- Assistant Producer
- Assistant Director

You may pursue a degree in Arts and Social Sciences, Journalism, Mass Communication, Film Studies, New Media Communication and other related degrees.

DTVM graduates have been accepted into degree programmes at local and foreign universities. Some of these universities grant generous exemptions and advanced standing to our graduates.

COURSE MODULES

<table>
<thead>
<tr>
<th>FULL-TIME</th>
<th>FIRST YEAR</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDS09</td>
<td>Communication Skills for Media Makers</td>
<td>45</td>
</tr>
<tr>
<td>MDS04</td>
<td>Creative Story Making</td>
<td>30</td>
</tr>
<tr>
<td>LCT000</td>
<td>Critical and Analytical Thinking</td>
<td>30</td>
</tr>
<tr>
<td>MDS02</td>
<td>Deconstructing Television</td>
<td>45</td>
</tr>
<tr>
<td>LCT001</td>
<td>Narrative Thinking</td>
<td>30</td>
</tr>
<tr>
<td>MDS07</td>
<td>Scriptwriting for Television Entertainment Programmes</td>
<td>60</td>
</tr>
<tr>
<td>MDS03</td>
<td>Story Classics Heroes Myth and Legends</td>
<td>45</td>
</tr>
<tr>
<td>MDS05</td>
<td>Storytelling I Visual Communication</td>
<td>60</td>
</tr>
<tr>
<td>MDS06</td>
<td>Storytelling II Conceptualisation and Structure</td>
<td>60</td>
</tr>
<tr>
<td>MDS08</td>
<td>Video Production Principles and Practices</td>
<td>105</td>
</tr>
<tr>
<td>MDS01</td>
<td>Writing Across Media Platforms</td>
<td>90</td>
</tr>
<tr>
<td>MDS02</td>
<td>World Issues and the Media Maker</td>
<td>45</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FULL-TIME</th>
<th>SECOND YEAR</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCR062</td>
<td>Design Thinking for Social Innovation</td>
<td>45</td>
</tr>
<tr>
<td>MDS105</td>
<td>Introduction to Documentary</td>
<td>75</td>
</tr>
<tr>
<td>MDS201</td>
<td>Journalism I News Writing for the Global Audience</td>
<td>45</td>
</tr>
<tr>
<td>MDS104</td>
<td>Journalism II Total Journalism</td>
<td>45</td>
</tr>
<tr>
<td>MDS104</td>
<td>Scriptwriting for Television I Drama and Comedy</td>
<td>90</td>
</tr>
<tr>
<td>MDS210</td>
<td>Storytelling II Character and Plot Development</td>
<td>45</td>
</tr>
<tr>
<td>MDS210</td>
<td>Transmedia Storytelling</td>
<td>45</td>
</tr>
<tr>
<td>MDS201</td>
<td>Video/Production for Narratives I (Drama and Comedy)</td>
<td>75</td>
</tr>
<tr>
<td>MDS206</td>
<td>Video Production for Narratives 2 (Documentary)</td>
<td>75</td>
</tr>
<tr>
<td>MDS207</td>
<td>Web Publishing and Design</td>
<td>75</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FULL-TIME</th>
<th>THIRD YEAR</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDS304</td>
<td>Creative Writing Project</td>
<td>105</td>
</tr>
<tr>
<td>IC8005</td>
<td>Internship</td>
<td>330</td>
</tr>
<tr>
<td>MDS304</td>
<td>Media Entrepreneurship</td>
<td>75</td>
</tr>
<tr>
<td>MDS301</td>
<td>Media Law and Ethics</td>
<td>60</td>
</tr>
<tr>
<td>MDS301</td>
<td>On Location Production</td>
<td>60</td>
</tr>
<tr>
<td>Options Choose one</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MDS301</td>
<td>Filmmaking</td>
<td>45</td>
</tr>
<tr>
<td>MDS301</td>
<td>Television and Online Journalism</td>
<td>45</td>
</tr>
</tbody>
</table>

*Students will select from various writing and media-related electives.

The popularity and application of digital animation has grown tremendously over the years. From animated features to game cinematics, comic illustration to product visualisation, these wonderful creations are the work of dedicated, creative and skilled professionals.

The Diploma in Digital Animation (DDA) prepares students for an exciting career in the world of digital animation. Our specially tailored curriculum and uniquely designed learning spaces provide an enriching experience that cultivates a student’s creativity and skills through rigorous training in both the traditional and digital medium.

COURSEWORK

In this 3-year full-time programme, students will receive firm grounding in the traditional arts and the use of digital tools. Projects and assignments are designed to propel students to greater heights in both skills and creativity. We ensure that the complete animation production process is covered, from conceptualisation to final delivery. Students will also get to specialise in one of two areas: digital assets and animation.

Every student will have his/her own space to really call ‘home’. They can be productive at their own personally decorated work area and engage in creative discussion with industry clients. There is a dedicated space for each of these activities at the one-of-a-kind M.A.D. (Media-Art-Design) Studios.

Another core feature is the opportunity to learn from the masters of the trade. Students will get to learn from the masters of the trade through activities like study trips, just to name a few.

CAREER PROSPECTS

Our graduates can look forward to an exciting and dynamic career in the digital media industry with roles such as 2D/3D animator, modeler, rigger, digital lighting artist, texture artist, concept artist, storyboard artist and layout artist.

FURTHER STUDIES

Many universities grant advanced standing to DDA graduates and admit them directly into the second or third year of a three-year degree programme.

COURSE STRUCTURE

This course consists of semester-based modules spread across six semesters. All students participate in a semester-long internship in Year 3 with an option of a year-long based on performance. Students are required to pass all the modules to be awarded the DDA.

Diploma in Digital Animation (DDA)
### COURSE MODULES

#### FULL-TIME FIRST YEAR HOURS
- MD1008 3D Animation Fundamentals 60
- MD1001 Animation Studio 1 90
- MD1005 Basic 3D Modelling & Texturing 60
- MD1008 Basic Lighting & Rendering 60
- LC0114 Communicating for Personal & Team Effectiveness 30
- LC1001 Critical and Analytical Thinking 90
- MD0001 Drawing 60
- MD1004 Figure Proportion and Anatomy 60
- MD1002 Graphs Design Principles 60
- MD1007 History of Animation 90
- LC1001 Narrative Thinking 30
- MD1003 Visual Storytelling 1 60

#### FULL-TIME SECOND YEAR HOURS
- Semester 1
  - Digital Assets Path
    - MD1121 Character Modelling and Setup 90
    - LC1042 Design Thinking for Social Innovation 30
  - MD1014 Digital Lighting and Rendering 90
  - MD1028 Figure Drawing for Animation 60
  - MD1001 Visual Storytelling 2 60
  - Options (Choose one)
    - MD1025 Basic Dynamic Simulation 60
    - MD0002 Video and Audio Fundamentals 60

- Semester 2
  - Digital Assets Path
    - MD1107 Animation Studio 3 90
    - MD1001 Animation Studio 2 90
    - MD1011 Elective 2 90
  - Options (Choose one)
    - MD1015 Character, Prop & Environment Design 60
    - MD1017 Introduction to Game Art Integration 60

#### FULL-TIME THIRD YEAR HOURS
- MD1101 Animation Studio 3 240
- MD1001 Elective 3 60
- IB0001 Internship 360
- Options (Choose one)
  - MD1001 Creative Effects 60
  - MD1002 Independent Study 60

---

### Diploma in Experience & Communication Design (DXCD)

If you are intrigued by graphic design and art direction that engages the senses, and are passionate about design as a tool for innovation and creativity – you are the fearless one we want.

Students will be prepared for a fast-evolving creative industry landscape, with the knowledge to apply ideas and communicate across many media platforms. Our comprehensive programme exposes you to the many facets of experience and communication design – graphic design, advertising, branding, digital photography, video production, user experience and interaction design.

You will be immersed in a dynamic environment, exposed to multiple media skills, enabling you to discover and develop your personal strengths. Join us in our inspiring design programme that incorporates a rigorous curriculum from exploratory projects to exciting collaborations with the industry.

---

Details:
The SP elective framework offers students options to pursue their passion and/or meet different career needs, and is an integral part of the holistic education we seek to provide to our students. The learning experiences of this elective framework help students in their development as self-directed, versatile, life-long learners, which are essential in today’s volatile and changing societal as well as occupational landscapes.

For a list of electives offered, please visit www.sp.edu.sg
ASSESSMENT
Most of the modules (year-long and semester-long) are in-course assessed. The assessment activities may consist of projects, tests, written reports, case studies, group work and assignments. Critique sessions and portfolio reviews will be conducted.

CAREER PROSPECTS
The training and knowledge acquired from this programme will allow graduates to be competent in creative design skills backed with a strong foundation in craftsmanship, user research methods and technology. Graduates who have done well for the course may be able to apply for advanced standing to do a degree in a university.

Career options include Web Designer, Graphic Designer, Junior Art Designer, Interaction Designer and User Experience Designer.

COURSE STRUCTURE
DGCD is a 3-year full-time diploma course. The modules are divided into both year-long and semester-long sessions. To qualify for the Diploma, a student must pass all the modules.

COURSEWORK
The teaching approach has an emphasis on project-based work, adopting a studio culture and process. Other than lectures and tutorials, there are drawing classes, workshops, research work, field trips, in-class assignments, project development work, presentation and critique sessions. The students' practical, theoretical, intellectual and creative skills are developed through project work, reinforced with peer learning, and supported by this studio process which closely follows the industry practice. The studio process is a critical component for the infusion of design values and rigorous development discipline required of the design and creative fields. Students will design and develop different types of fun and engaging games.

The course encourages you to explore the different pathways in the games industry with game design as the core. You get to learn and experience the different aspects of game development like game design, level design, user interface design, character illustration, 3D modelling, animation, gameplay programming and game project management. Discover your talent as you go through the course.

Join us now and embark on the quest in creating your own games in the Diploma in Game Design & Development.

People of all ages are playing games because they are fun and entertaining. Some of the exciting games that you may be playing right now are created locally by Singapore-based game studios. Have you ever wondered what it is like to create such games?

The games industry is fast-growing and games are changing the way we interact with the world. In fact, games are not just designed for entertainment purposes only. They are designed to aid in education, therapy and other applications as well. The Diploma in Game Design & Development (DGDD) will help you to open the gateway to the games industry as you learn how to

COURSES
The teaching approach has an emphasis on project-based work, adopting a studio culture and process. Other than lectures and tutorials, there are drawing classes, workshops, research work, field trips, in-class assignments, project development work, presentation and critique sessions. The students' practical, theoretical, intellectual and creative skills are developed through project work, reinforced with peer learning, and supported by this studio process which closely follows the industry practice. The studio process is a critical component for the infusion of design values and rigorous development discipline required of the design and creative fields. Students will
immense themselves in a rigorous design and practice environment that is project-focused and driven intensely by lecturers and peers. The approach fosters a sense of rapport and personal ownership of the studio space and of the works that come out of it.

ASSESSMENT
All modules use in-course assessment. The activities include presentations and critiques, submission of reports, assignments, and project work. The project work involves research and analysis, problem-solving, carrying out simulation and play testing, as well as design and development of prototypes. Review of students’ portfolio building is another component under assessment. Advisory members and mentors from higher academic institutions and industry professional practitioners are regularly engaged for curriculum review to ensure quality of the programme is maintained.

CAREER PROSPECTS
The training and knowledge acquired from this programme would allow graduates to be competent in creative design skills and understanding of the design process backed with a strong foundation in digital technology and design tools for games. Career options for our graduates include 2D Artist, 3D Artist, Animator, Concept Artist, Game Designer, Game UI/UX Designer, Gameplay Programmer, Game Quality Assurance Tester, and Level Designer.

COURSE STRUCTURE
In the second semester of year 2, students are required to choose either game art elective or game programming elective on top of the compulsory modules. The modules are divided into both year-long and semester-long sessions. Students are also required to complete a 12-week Internship Programme. To graduate, a student must pass all the modules.

COURSE MODULES

<table>
<thead>
<tr>
<th>Course Modules</th>
<th>Year Long</th>
<th>Full-Time</th>
<th>First Year</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MD0002 Design Theory and Research I</td>
<td>Year Long</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MD0001 Basic Drawing Class</td>
<td>Semester 1</td>
<td>45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC1094 Communicating for Personal &amp; Team Effectiveness</td>
<td>Semester 1</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MD0006 Course Specific Skills</td>
<td>Semester 1</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC1090 Critical and Analytical Thinking</td>
<td>Semester 1</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MD0004 Experience Design</td>
<td>Semester 1</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MD0007 Foundation Design Studio</td>
<td>Semester 1</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MD0008 Graphic and Visual Communication</td>
<td>Semester 1</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MD0001 Logic Design</td>
<td>Semester 1</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MD0002 Game Art &amp; Animation 1</td>
<td>Semester 2</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MD0003 Game Design 1</td>
<td>Semester 2</td>
<td>45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MD2102 Games Design and Development Studio 2</td>
<td>Semester 2</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MD2103 Games Design and Development Studio 1</td>
<td>Semester 2</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MD2104 Game Programming 1</td>
<td>Semester 2</td>
<td>45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC2081 Narrative Thinking</td>
<td>Semester 2</td>
<td>30</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Modules</th>
<th>Year Long</th>
<th>Full-Time</th>
<th>Second Year</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MD0022 Design Theory and Research 2</td>
<td>Year Long</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MD2222 Game Design 2</td>
<td>Semester 1</td>
<td>90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MD2212 Games Design and Development Studio 2</td>
<td>Semester 1</td>
<td>240</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC1082 Design Thinking for Social Innovation</td>
<td>Semester 1</td>
<td>45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MD2201 Game Art and Animation 1</td>
<td>Semester 1</td>
<td>80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MD2202 Game Programming 2</td>
<td>Semester 1</td>
<td>45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ST0276 Ethics and Law of IT and Media</td>
<td>Semester 1</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Elective</td>
<td>Semester 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Options (Choose one)</td>
<td>Semester 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MD2203 Game Art and Animation 2</td>
<td>Semester 2</td>
<td>105</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MD2204 Game Programming 3</td>
<td>Semester 2</td>
<td>45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS005 Mathematics for Games for students taking Game Programming 3</td>
<td>Semester 2</td>
<td>60</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Modules</th>
<th>Year Long</th>
<th>Full-Time</th>
<th>Third Year</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MD0032 Design Theory and Research 3</td>
<td>Year Long</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MD2322 Game Design 3</td>
<td>Semester 2</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MD2312 Games Design and Development Studio 3</td>
<td>Semester 2</td>
<td>240</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IA8002 Internship Program</td>
<td>Semester 2</td>
<td>12 Weeks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective 2</td>
<td>Semester 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Options (Choose one)</td>
<td>Semester 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MD2322 Game Art and Animation 4</td>
<td>Semester 3</td>
<td>165</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MD2342 Game Programming 4</td>
<td>Semester 3</td>
<td>165</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Diploma in Media & Communication (DMC)

The Diploma in Media & Communication (DMC) is a comprehensive mass communication course that helps you to connect with people by telling compelling stories. Learn how to create engaging content and plan effective communication campaigns using print, broadcast and digital media.

DMC will prepare you for the fast-paced world of modern communication, from producing online content and managing social media to executing multi-market campaigns and everything in between.

A variety of creative challenges awaits you in The Agency. DMC’s very own learning space that simulates a 21st century communications agency. DMC students also benefit from our partnerships in the industry and with industry greats like Ian Batey, the man behind the branding of Singapore Airlines and the Raffles Hotel.

In your second and third years, you will choose from a range of specialisations that focus on integrated communication and content production. At DMC, authentic learning means you will work closely with our industry partners to nurture your aspirations. You will also get to apply SP’s unique Design Thinking methodology to real world projects.

IN THIS COURSE, YOU WILL:

- Produce branded content for online and traditional platforms that captivates your audience and generates buzz.
- Create, develop and pitch real-world campaigns at The Agency, a facility modelled after an actual communications agency.
- Hold media conferences and get your research work published by national and regional media.
- Nurture your talents and aspirations and build your portfolio in MAD Agency, an out-of-classroom incubator that allows students to work on industry projects.

Electives
The SP elective framework offers students options to pursue their passion and/ or meet different career needs, and is an integral part of the holistic education we seek to provide to our students. The learning experiences of this elective framework help students in their development as self-directed, versatile, life-long learners, which are essential in today’s volatile and changing societal and occupational landscape.

For details of electives offered, please visit www.sp.edu.sg
Learn from the best in the media and communication industry through our master classes, industry visits, talks and networking sessions. Branding legend Ian Batey, who was behind icons such as Raffles Hotel and Singapore Airlines, will personally mentor recipients of the prestigious Batey Talent Programme.

**YOUR FUTURE**
Embark on an exceptional career in the media and communication industry. With a Diploma in Media & Communication, you can be any of the following:
- Advertising Executive
- Content Marketing Specialist
- Content Writer/Producer
- Social Media Analyst
- Communication Strategist
- Public Relations Executive
- Corporate Communication Executive
- Feature Writer
- Media Planner

You may pursue a degree in Communication, Business, Arts and Social Sciences and other related courses. DMC graduates have been accepted into degree programmes at local and foreign universities. Some of these universities grant generous exemptions and advanced standing to our graduates.

### Diploma in Music & Audio Technology (DMAT)

Music and audio effects are used to enhance the emotional impact of a film, video, game or animation so as to create an enriching experience. In many types of media, such as film, broadcast, animation, or music albums, music plays an integral part in the production. Music can either be created as a complement for various visual media or as an independent product in the form of a recorded song or an advertising jingle.

The 3-year diploma course is designed to provide a holistic music education that imparts components of creativity and technology, with emphasis on the integrated use of music and audio elements. It is unique in that the curriculum is designed with a heavy emphasis on developing the creative capabilities of our students. This has enabled them to function in a variety of existing and emerging media environments.

In addition, the curriculum has been designed to cultivate the entrepreneurial potential of students through creating opportunities for students to showcase and market their skills and services.

**COURSEWORK**
The course adopts a project-based learning approach. Students’ learning takes place in small groups through a variety of teaching methods such as lectures, tutorials, presentations, critique sessions, research and practical work.

A significant amount of time is allocated for studio work to ensure students become competent at applying their skills to meet the commercial requirements. Case studies and study trips are also incorporated to facilitate experiential learning. In addition, the curriculum will facilitate the employability of our graduates by creating avenues and opportunities for them to showcase and market their skills and services.

### COURSE MODULES

<table>
<thead>
<tr>
<th>FULL-TIME</th>
<th>FIRST YEAR</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MD4008</td>
<td>Advertising</td>
<td>45</td>
</tr>
<tr>
<td>MD4101</td>
<td>Branded Video Content I</td>
<td>60</td>
</tr>
<tr>
<td>MD4104</td>
<td>Branding Fundamentals</td>
<td>45</td>
</tr>
<tr>
<td>MD4107</td>
<td>Building a Brand</td>
<td>45</td>
</tr>
<tr>
<td>MD4106</td>
<td>Business for Communication Professionals</td>
<td>45</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FULL-TIME</th>
<th>SECOND YEAR</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MD4203</td>
<td>Branded Video Content II</td>
<td>90</td>
</tr>
<tr>
<td>LC4040</td>
<td>Critical and Analytical Thinking</td>
<td>30</td>
</tr>
<tr>
<td>MD4001</td>
<td>Introduction to Psychology</td>
<td>90</td>
</tr>
</tbody>
</table>

### Electives

**Options (Choose one)**
- MD4111 Art Direction for Advertising
- MD4201 Public Relations in Practice
- MD4210 Trends in Advertising

**SECOND YEAR HOURS**

<table>
<thead>
<tr>
<th>FULL-TIME</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC4042</td>
<td>Design Thinking for Social Innovation</td>
</tr>
<tr>
<td>MD4206</td>
<td>Digital Analytics</td>
</tr>
<tr>
<td>MD4201</td>
<td>Digital Marketing</td>
</tr>
<tr>
<td>Elective 1</td>
<td>30</td>
</tr>
<tr>
<td>Elective 2</td>
<td>30</td>
</tr>
<tr>
<td>MD4207</td>
<td>News and Feature Writing</td>
</tr>
<tr>
<td>MD4202</td>
<td>Public Relations Fundamentals</td>
</tr>
<tr>
<td>MD4205</td>
<td>Quantitative Research</td>
</tr>
<tr>
<td>MD4204</td>
<td>Web Programming &amp; Design</td>
</tr>
</tbody>
</table>

**THIRD YEAR HOURS**

<table>
<thead>
<tr>
<th>FULL-TIME</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MD4211</td>
<td>Art Direction for Advertising</td>
</tr>
<tr>
<td>MD4201</td>
<td>Public Relations in Practice</td>
</tr>
<tr>
<td>MD4210</td>
<td>Trends in Advertising</td>
</tr>
</tbody>
</table>

**Options (Choose one)**
- MD4303 Content Marketing Strategies | 90 |
- MD4304 Total Journalism | 90 |
- MD4305 Filmmaking | 45 |
- MD4306 TV Production & Management | 90 |

### Case Studies and Study Trips
Case studies and study trips are also incorporated to facilitate experiential learning. In addition, the curriculum will facilitate the employability of our graduates by creating avenues and opportunities for them to showcase and market their skills and services.
CAREER PROSPECTS
Mainly serving the digital media and entertainment industry, our graduates can look forward to exciting careers in the established media organisations or companies, such as national broadcasters, cable channels, production houses, advertising agencies and also at live performance venues.

Alternatively, they can seek other opportunities in companies which require music or audio to support their media or business objectives or training institutions. For example, game production companies requiring sound effects for their games and advertising agencies, web enterprises requiring audio to engage their customers.

Fresh Diploma in Music & Audio Technology (DMAT) graduates are typically employed as production assistants. Their main role is to support the production process. Talented graduates may earn the opportunity to direct or lead some of these processes by becoming assistant producers.

COURSE STRUCTURE
This course has a combination of year-long and semester-based modules spread across six semesters. The core curriculum covers three distinctive skill domains: namely Musical Skills, Audio Skills and Professional Practices. These three skill domains equip students with the required conceptual, technical and professional skills.

All students are expected to participate in a 17-week internship programme during their third year. Students are required to pass all the modules to be awarded the Diploma in Music and Audio Technology.

FURTHER EDUCATION
DMAT course is recognised by local universities and many reputable foreign universities in Australia, Hong Kong, United Kingdom and the United States. DMAT graduates are granted advanced standing by many universities for admission into the second year or final year of their degree programmes.

Our graduates have also been awarded local and overseas scholarships and studied in local universities and foreign universities, such as NUS, Keele University and Berklee College of Music.

COURSE MODULES

<table>
<thead>
<tr>
<th>FULL-TIME</th>
<th>FIRST YEAR</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MD3102</td>
<td>Acoustical Science</td>
<td>75</td>
</tr>
<tr>
<td>LC0854</td>
<td>Communicating for Personal &amp; Team Effectiveness</td>
<td>30</td>
</tr>
<tr>
<td>LC0856</td>
<td>Communicating for Project (Report) Effectiveness</td>
<td>30</td>
</tr>
<tr>
<td>LC1060</td>
<td>Critical and Analytical Thinking</td>
<td>30</td>
</tr>
<tr>
<td>MD3142</td>
<td>Music Theory 1</td>
<td>120</td>
</tr>
<tr>
<td>MD3152</td>
<td>Musicianship</td>
<td>115</td>
</tr>
<tr>
<td>LC1061</td>
<td>Narrative Thinking</td>
<td>30</td>
</tr>
<tr>
<td>MD3112</td>
<td>Production Lab</td>
<td>120</td>
</tr>
<tr>
<td>MD3101</td>
<td>Recording and Mixing Techniques 1</td>
<td>60</td>
</tr>
<tr>
<td>MD3112</td>
<td>Synthesis and Composition 1</td>
<td>120</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FULL-TIME</th>
<th>SECOND YEAR</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MD3204</td>
<td>Arranging</td>
<td>45</td>
</tr>
<tr>
<td>LC0862</td>
<td>Design Thinking for Social Innovation</td>
<td>45</td>
</tr>
<tr>
<td>MD3201</td>
<td>Music Theory 2</td>
<td>80</td>
</tr>
<tr>
<td>MD3232</td>
<td>Performance Practices</td>
<td>90</td>
</tr>
<tr>
<td>MD3212</td>
<td>Production Workshop</td>
<td>90</td>
</tr>
<tr>
<td>MD3222</td>
<td>Recording and Mixing Techniques 2</td>
<td>120</td>
</tr>
<tr>
<td>MD3242</td>
<td>Song Writing</td>
<td>90</td>
</tr>
<tr>
<td>MD3202</td>
<td>Synthesis and Composition 2</td>
<td>45</td>
</tr>
<tr>
<td>MD3203</td>
<td>The Business of Music</td>
<td>75</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FULL-TIME</th>
<th>THIRD YEAR</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MD3103</td>
<td>Audio Post-Production</td>
<td>60</td>
</tr>
<tr>
<td>IB0003</td>
<td>Internship Programme</td>
<td>17 weeks</td>
</tr>
<tr>
<td>MD3106</td>
<td>Interactive Audio</td>
<td>60</td>
</tr>
<tr>
<td>MD3101</td>
<td>Portfolio Development</td>
<td>90</td>
</tr>
<tr>
<td>MD3102</td>
<td>Scoring for Visuals</td>
<td>60</td>
</tr>
<tr>
<td>Options</td>
<td>Choose One</td>
<td></td>
</tr>
<tr>
<td>MD3104</td>
<td>Show Production</td>
<td>75</td>
</tr>
<tr>
<td>MD3105</td>
<td>Ensemble Lab</td>
<td>75</td>
</tr>
</tbody>
</table>

Diploma in Visual Effects & Motion Graphics (DVEMG)

It’s been said that Hollywood may still be where the world’s biggest movies are made, but thanks to the visual effects companies like Lucasfilm (ILM Singapore) and Infinite Studios, Singapore is fast becoming an Asian hub for ILM Singapore’s back-room operations. Since then, Singapore-based teams have worked on visual effects for blockbusters such as The Avengers, Captain America, Aquaman to name a few.

Visual Effects and Motion Graphics are part of what makes movies and TV magical. These highly skilled professionals manipulate video by adding animation, graphics and special effects that ordinarily could not be staged in real life. The Diploma in Visual Effects & Motion Graphics (DVEMG) is designed to emphasise motion graphics and visual effects composing by providing skills drawn from the various fields of photography, graphic design, composing, video, and animation.

Experience real life projects such as Halloween Night at Sentosa, Youth Model ASEAN Conference (YMAC), World Solar Car Challenge and interesting music videos. Home-based M.A.D. (Media-Art-Design) studios are built to simulate recruitment talks and projects.

COURSEWORK
Classes are conducted in our Media-Art-Design studios which are all built to mimic a studio environment. In addition, students get to experience out-of-classroom learning and participate in overseas activities such as study trips, immersion programmes, internships, as well as competitions that will nurture a student’s global mindset and extend their industry experience and network.

The DP effective framework offers students opportunities to pursue their passion in and across different career paths, and as an integral part of the holistic education we seek to provide to our students. The learning experiences of the effective framework help students in their development as self-directed, versatile, life-long learners, which are essential in today’s volatile and changing societal as well as occupational landscapes.

For a list of elective offered, please visit www.sp.edu.sg
COURSE STRUCTURE

To qualify for the Diploma in Visual Effects and Motion Graphics (DVEMG), a student must pass all the core modules and required elective modules. The curriculum covers three distinctive skills domains, namely Design and Concept Art, Visual Effects and Motion Graphics, and Production and Professional Practice.

a) Design and Concept Art

Students will learn art and design fundamentals such as drawing, painting, and photography in their historical and stylistic context. Students will be taught to recognise various design elements and principles, and how they influence design decisions. Students will be expected to translate their ideas into functional designs.

b) Visual Effects and Motion Graphics

Students learn 3D modelling and texturing and lighting used in the production of 3D objects and environments. Students get to apply their skills through creating props and virtual sets that enhance visual storytelling. Students will also develop a keen understanding of pre-production requirements that are necessary to integrate computer generated elements with live action. 3D technology associated with camera matching is emphasised to enable students to achieve complex effects commonly used in the industry. Motion Graphics extrapolate a student’s ability in static design and focuses on the design of movement. Students will spend hours researching and designing style frames, creating design boards before animating them. Students will learn to simulate real life movement and learning through critique and feedback is a large part of our teaching methods.

c) Production and Professional Practice

A holistic education in the complete production pipeline approach in visual effects and motion graphics includes the student’s ability to function as a professional in a commercial setting. The visual effects and motion graphics designer are required to be passionate, a team player, able to work independently and aware of his ethical and legal obligations towards clients and the community.

Electives

The SP elective framework offers students options to pursue their passion and/or meet different career needs, and is an integral part of the holistic education we seek to provide to our students. The learning experiences of this elective framework help students in their development as self-directed, versatile life-long learners, which are essential in today’s volatile and changing societal as well as occupational landscapes.

For a list of electives offered, please visit www.sp.edu.sg
Singapore Maritime Academy’s role is to produce competent personnel to meet the manpower requirements of the maritime and transportation industries and their associated shore-based supporting infrastructure. Currently, there is an acute shortage of such qualified personnel. To achieve this, the academy provides educational and training courses at both Diploma and Certificate of Competency levels. The academy also offers a wide range of short courses and tailor-made courses to meet the training needs of the maritime industry.

The diploma courses aim to produce graduates with broad-based experience, a multi-disciplinary approach in problem-solving, and positive attitudes towards work and personal growth.

The Certificate of Competency courses are designed for experienced marine engineers and deck officers to prepare them for their professional licences. These courses are also modularised and serve as extensions to their respective diploma programmes.

**Diploma in Marine Engineering (DMR)**

The Diploma in Marine Engineering (DMR) is a three-year full-time course which includes a 6-month structured internship programme with approved establishments, locally or overseas. The course structure is modularised to enhance learning and to provide flexibility to meet the training needs of the maritime industry.

**CAREER PROSPECTS**

Marine engineers are managers of complex power plants and systems. Marine engineers operate, maintain, repair, and manage large engineering power systems. The diploma programme is designed to train our students to a level of competency whereby they are able to handle independently a wide range of engineering problems which require knowledge from multiple disciplines. Upon graduation, you can join a modern foreign-going ship and progress in stages from junior to chief engineer by qualifying for Certificates of Competency issued by the Maritime and Port Authority of Singapore (MPA). The profession of a marine engineer is a challenging one that comes with good monetary rewards. Because of the broad-based experience and early responsibility gained as a ship’s engineer, you will also be well sought after in diverse shore-based industries. There are many further education opportunities with local and foreign universities to advance your career.

Under the Singapore Institute of Technology (SIT) – Polytechnics partnership, supported by Ministry of Education, Diploma in Marine Engineering graduates may read the Bachelor of Engineering in Marine Technology, with Honours in Marine Engineering, Offshore Engineering, or Naval Architecture degree awarded by Newcastle University (UK) locally in two years.

**PRACTICAL TRAINING**

The structure of the diploma programme provides for this in two ways:

- Through intensive training in our fully equipped workshops, simulators and laboratories specifically designed for hands-on learning.

---

*All full-time diploma students are required to take two compulsory Education and Career Guidance Modules in SP. Students will take SP101A: Education and Career Guidance 1 – Personal Development (15 hours) in their first year. In their second or third year, students will take SP201A: Education and Career Guidance 2 – Career Development (30 hours).

*All students are required to take one compulsory Sports for Life (SFL) module for one semester in their first year in SP. In their second and third year, students may sign up for SFL module as an elective.*
Courses are evaluated through a combination of in-course and end-of-semester assessment. Each module is assessed according to its aims and objectives and may take the form of written and practical examinations, assignments, projects and oral presentations. A satisfactory standard must be attained during the Industrial Training Programme.

**ASSESSMENT**

Students’ performance and progress are evaluated through a combination of in-course and end-of-semester assessment. Each module is assessed according to its aims and objectives and may take the form of written and practical examinations, assignments, projects and oral presentations. A satisfactory standard must be attained during the Industrial Training Programme.

**CAREER PROSPECTS**

Graduates of this diploma are most sought after by companies offering shipping services. These include ship management, logistics, ship owning, shipbrokering, ship agency, freight forwarding, marine insurance, ship chartering, maritime law firms and also MPA and PSA. They will join firms and also MPA and PSA. They will join Practitioners from the shipping industry are invited to give talks to students from time to time and field visits are arranged when necessary. The 6-month shore-based enhanced internship programme is carefully planned and closely monitored by in-house company supervisors and academic staff. This exposure provides students with a first-hand experience of working in maritime related or logistics organisations in Singapore.

**ASSESSMENT**

Modules are assessed by means of in-course assessments.
## COURSE MODULES

### FULL-TIME FIRST YEAR HOURS

<table>
<thead>
<tr>
<th>Stage 1A</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MA0110 Ship Operations</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>MA0215 Introduction to Maritime Industry</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>MA0083 Financial Accounting in Shipping</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>MA019 Banking Practices</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>MA0203 Maritime Personnel Management</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>MA0102 Logistics Management</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>LC0650 Critical &amp; Analytical Thinking</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Stage 1B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS7124 Business Statistics</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>MA0059 Maritime Economics</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>MS7524 IT and Data Analysis for Business</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>MA013 Port Operations</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>LC0654 Communicating for Personal &amp; Team Effectiveness (CPT)</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>MA028 Principles of Shipping Practice</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>LC0661 Narrative Thinking</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

### FULL-TIME SECOND YEAR HOURS

<table>
<thead>
<tr>
<th>Stage 2A</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MS7224 Business Data Analytics</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>MA019 Port Agency</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>MA0090 Financial Management in Shipping</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>MA015 Law of Carriage of Goods by Sea</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>LC0658 Communicating for Project Effectiveness (CPF)</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>LC8652 Design Thinking for Social Innovation</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Stage 2B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IF001 Enhanced Internship</td>
<td>310</td>
<td></td>
</tr>
</tbody>
</table>

### FULL-TIME THIRD YEAR HOURS

<table>
<thead>
<tr>
<th>Stage 3A</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MA003Y Project</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>MA017 Supply Chain Management</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>MA020 Marine Insurance</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>MA011 Marine Offshore Operations</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>MA023 Maritime Law</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>MA026 Ship Financing</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Stage 3B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MA0032 Project</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>MA0205 Ship Management</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>MA0093 Marketing of Shipping Services</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>MA022 Electronic Commerce</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>MA000 Marine Engineering Knowledge</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>LC0657 Communicating for Professional Effectiveness (CPF)</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Elective 3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## CAREER PROSPECTS

Each ship requires a Captain and three navigating officers. Candidates completing DNS will qualify to be a Second Officer onboard a merchant vessel, provided they have sufficient sea service and pass an Oral Examination conducted by MPA. This examination leads to the award of the Class 3 (Deck Officers) Certificate of Competency, which is internationally recognised. The scheme comprises of three phases.

### PHASE 1

This three-semester Pre-Sea Induction Course at SP prepares students as cadet officers aboard ship. Students are taught the fundamental knowledge and skills required for a deck officer. During this period, the student attends an approved STCW Basic Occupational Safety and Security course. The student will also be required to attend an approved STCW Medical First Aid on Board Ship course as an ancillary.

### PHASE 2

During this phase, the students undergo shipboard training following a structured training programme, which includes a correspondence course package and the completion of a training and assessment record book. As cadet officers, students are groomed to shoulder the responsibilities of a Navigating Officer. A minimum sea service of 12 months is required for the award of DNS and the Class 3 (Deck Officers) Certificate of Competency.

### PHASE 3

This final phase of study (one semester) for the DNS course includes the Class 3 (Deck Officers) Certificate of Competency Preparatory Course. The curriculum includes Electronics Navigation Systems and GMDSS. The holder of the diploma may be granted exemption from the written part of the Class 3 Certificate of Competency examination conducted by MPA Singapore.

### ASSESSMENT

Modules in Phase 1 and 3 will be assessed either in-course and/or by means of summative examinations.

---

**References**

The SP elective framework offers students options to pursue their passion and/or meet different career needs, and as an integral part of the holistic education we seek to provide to our students. The learning experiences of this elective framework help students in their development as self-directed, versatile, life-long learners, which are essential in today’s volatile and changing societal as well as occupational landscape.

For a list of electives offered, please visit www.sp.edu.sg
The learning experiences of this elective framework help students in their development as self-directed, versatile, life-long learners, which are essential in today's volatile and changing societal landscapes.

The SP elective framework offers students options to pursue their passion and/or meet different career needs, and is an integral part of the holistic education we seek to provide to our students.

### COURSE MODULES

#### FULL-TIME

**FIRST YEAR**

- **MA0556** Meteorology 45
- **MA0539** Principles of Navigation 60
- **MA0555** Ship Knowledge 120
- **MS7442** Science I 60
- **LC0654** Communications for Personal & Team Effectiveness 30
- **LC0660** Critical & Analytic Thinking 30
- **MS7543** Fundamentals of IT and Data Analysis 30

**SECOND YEAR**

- **Phase 1A**
  - **MA0534** Advanced Fire-Fighting 30
  - **MA0568** Basic Tanker Training 75
  - **MA0567** Electronic Navigation Systems I 102.5
  - **MS7341** Mathematics II 45
  - **Elective I** 75
  - **MS7452** Applied Science 60
  - **LC0662** Design Thinking for Social Innovation 45

- **Phase 2A**
  - **MA0560** Collision Regulations 60
  - **MA0562** Cargo Work & ISM 37.5
  - **MA0543** Coastal Navigation 52.5
  - **MA0563** Electronic Navigation Systems II 30
  - **MA0564** GMDSS 82.5
  - **MA0542** Practical Navigation 75
  - **MA0565** Ship Construction and Ship Stability 52.5
  - **MA0525** Ship Operations 97.5

### E-LEARNING TOTAL

- **Diploma in Maritime Management (Conversion)**
  - **Course 1**
    - **PDC1** Certificate in Shipping Business and Operations
      - MA0582 Maritime Economics and Surveying 45
      - MA0581 Maritime Law and Insurance 45
      - MA0583 Port and Cargo Management 45
    - **PDC2** Certificate in Ship Management and Offshore
      - MA0583 Marketing and Financial Management 45
      - MA0504 Ship Management and Surveying 45
      - MA0585 Supply Chain Management 45
    - **PDC3** Certificate in Ship Management and Logistics
      - MA0504 Marketing and Financial Management 45

### DIPLOMA (CONVERSION) IN MARITIME BUSINESS MANAGEMENT Part Time

This course aims to equip non maritime graduates with knowledge and skills in shipping operations and logistics/offshore management so that they can join the maritime industry as senior executives/junior managers and perform their jobs with a greater level of competence and understanding. They will also have brighter prospects for upward career mobility after gaining adequate experiences and/or further academic qualifications.

**ASSESSMENT**

Modules are assessed by means of in-course assessments.

### SPECIALIST DIPLOMA IN MARITIME SUPERINTENDENCY Part Time

Maritime Superintendents comprising Marine and Technical Superintendents are the key positions in Ship Management. They are responsible for the safety and efficiency of the ship operations to meet customers and international regulatory requirements. They are also responsible for the crew well-being and to ensure that their working and living conditions meet the international requirements as laid down in the Maritime Labour Convention.

This course offers a comprehensive training that caters to the needs of applicants who are seeking to attain the relevant knowledge and technical skills to plan, direct and coordinate the marine and related technical operation from shore.

Developed in alignment with the Skills Framework for Sea Transport under Technical Superintendent / Senior Superintendent and Marine Superintendent / Senior Marine Superintendent. The course syllabus is based on the critical functions, key tasks and mapped with the Skills and Competencies listed in the Skills Maps of Technical and Maritime Superintendents.

At the end of the course, the students will acquire a sound understanding of the roles and responsibilities of maritime superintendents to ensure safe, economic and efficient operation of the ships and offshore vessels. They will also be able to manage and operate vessels in accordance with organisation policies, operating procedures and management systems.

**ASSESSMENT**

Modules are assessed by in-course projects and assignments.

### COURSE MODULES

**CANDIDATES MUST SUCCESSFULLY COMPLETE THE FOLLOWING MODULES AT SMA**

Students will choose either PDC2A or PDC2B in Semester 2, but only one PDC will be offered depending on the sign up rate.

**Semester 1**

- **PDC1** Certificate in Shipping Business and Operations
  - MA0582 Maritime Economics and Surveying 45
  - MA0581 Maritime Law and Insurance 45
  - MA0583 Port and Cargo Management 45

**Semester 2**

- **PDC2A** Certificate in Ship Management and Offshore
  - MA0504 Marketing and Financial Management 45
  - MA0504 Ship Management and Surveying 45
  - MA0585 Supply Chain Management 45
- **PDC2B** Certificate in Ship Management and Offshore
  - MA0583 Marketing and Financial Management 45
  - MA0504 Ship Management and Surveying 45
  - MA0585 Supply Chain Management 45

2 Course intakes per year in October and April. For more information on Part-Time Diploma courses, please refer to www.pace.sp.edu.sg
PROFESSIONAL CERTIFICATE OF COMPETENCY COURSES

Part-time courses for Deck Officers and Marine Engineers of the Merchant Navy. The courses lead to the award of internationally recognised Certificates of Competency issued by the MPA. All prospective candidates for these courses are advised to get their sea time and relevant testimonials assessed and eligibility confirmed by the Shipping Division, MPA, prior to enrolment into the course. All courses meet 2010 Manila Amendments to STCW Convention.

Director, Shipping Division, Maritime and Port Authority of Singapore
460 Alexandra Rd. #01-00 PSA Building, Singapore 119963
Tel: (65) 6375 6222
Fax: (65) 6375 6231
Email: cocc@mpa.gov.sg

PREPARATORY COURSE CLASS 1 (DECK OFFICER) Certificate of Competency (CoC)

This 4-week course prepares the candidate for the CoC Class 1 Deck Officer Oral examination conducted and approved by MPA.

**Course Duration:** 4 weeks

**Course Intake:** 2018: Every alternate month starting from January

**Course Fees:** S$2,407.50 (including 7% GST but excluding S$300 for Orals and Simulated Assessment Exam Fees conducted by MPA)

**Course Modules**

Module 1: Ship Handling – Simulator
Module 2: Oral Assessment Support

**Assessment**

Candidates will be assessed by MPA in the CoC Class 1 Oral Examination.

**Entry Requirements**

Candidates must have completed their Class 1 & 2 Deck written examinations conducted by SMA (approved by MPA)

be in possession of a CoC Class 2 Deck Officer (approved by MPA)

meet the sea service requirements of MPA for the issue of the CoC Class 1 Deck Officer.

For enquiry of sea service, candidates are advised to write to Training Standards Department Training Division Maritime and Port Authority of Singapore 460 Alexandra Road #21-00 PSA Building, Singapore 119963 Tel: (65) 6375 6222 Fax: (65) 6375 6231 Email: cocc@mpa.gov.sg

CLASS 1 & 2 (DECK OFFICER) Certificate of Competency (CoC)

This is a full-time 20-week (five months) combined Class 1 & 2 Deck Officers course. It will lead to Class 1 & 2 CoC, issued by MPA upon successful completion of written examinations at SMA and oral examinations at MPA. The course meets the requirements of the latest STCW convention and is recognised by the international shipping industry. There are two intakes per year, in April and October. Candidates need to successfully complete the written examinations conducted by SMA and pass the oral examinations conducted by MPA for the award of CoC Class 3 Deck Officer.

**Course Duration:** 18 weeks

**Course Intake:** April and October

**Course Fees:** S$11,100 including 7% GST (subject to revision)

**Assessment**

Modules will be assessed either in-course and/or by means of semestral examinations.

**Entry Requirements**

Sea Service Requirements — It is open to candidates with the requisite 36-month sea time or as approved by MPA.

**Course Modules**

Candidates must successfully complete the following modules at SMA

**MC2020:** Navigation
**MA2022:** Ship Handling & Simulator
**MA2023:** Marine Plant & Propulsion
**MA2025:** Accounting
**MA2026:** Maritime Law & Personnel Management
**MA2027:** Meteorology
**MA2029:** Compass
**MA2030:** Ship Stability

COC 3 (DECK OFFICER) Certificate of Competency (CoC)

This is a full-time course of 18 weeks. The course meets the requirements of latest STCW convention and is highly recognised by the international shipping industry. There are two intakes per year, in April and October. Candidates need to successfully complete the written examinations conducted by SMA and pass the oral examinations conducted by MPA for the award of CoC Class 3 Deck Officer.

**Course Duration:** 18 weeks

**Course Intake:** April and October

**Course Fees:** S$10,150 including 7% GST (subject to revision)

**Assessment**

Modules will be assessed either in-course and/or by means of semestral examinations.

**Entry Requirements**

Sea Service Requirements — It is open to candidates with the requisite 36-month sea time or as approved by MPA.

**Course Modules**

Candidates must successfully complete the following modules at SMA

**MC2020:** Navigation
**MA2022:** Ship Handling & Simulator
**MA2023:** Marine Plant & Propulsion
**MA2024:** Accounting
**MA2026:** Maritime Law & Personnel Management
**MA2027:** Meteorology
**MA2029:** Compass
**MA2030:** Ship Stability
**MA2031:** Ship Construction

COURSE OUTLINE

**Phase 1 (E-Learning)/ A Part Of CoC 3 Preparatory Course**

This programme is designed for local and international deck personnel aspiring to become Junior Deck Officers. By doing this course, the student can reduce in-cabin time to 8 weeks preparatory course. The student will enrol in Phase II in the next available batch of 8-weeks of ‘in-cabin course’ at SMA. The E-Learning programme allows you to work at your own pace right from the comfort of your home.

**Suitable for**

Candidates appearing for Class 3 Deck Officers Certificate of Competency in Singapore.

**Assumed Skills and Knowledge**

A candidate must fulfill all the following requirements:

- A basic high school qualification with a proficiency in English language
- Sea time must be completed on the ships of more than 3,000 GT engaged in International voyages
- Must have completed at least 18 months of sea time in Deck department (as A/B, O/C or Deck cadet only)

**Application Procedure**

Applying through PACE website, www.pace.edu.sg

**Course Outline**

Once you have enrolled, you will receive an email notifying you of your login details. Use your login details to log into the site. Click on the ‘e-Learning’ tab in the home page to access your courses.

Course covers the following modules, as required by STCW regulation:

- General Ship Knowledge
- Navigation
- Coastal Navigation
- Meteorology
- Mathematics
- Science

**Assessment**

Modules will be assessed by in-course assessment.

**Entry Requirements**

Candidates as selected by MPA, e2i and SSA.

**Course Fees:** S$5,600 + 7% GST (subject to revision)

**Phase 2 (In-Campus)/A Part of CoC 3 Preparatory Course**

This is a full-time 15-week course. This course is designed as per the requirements given by MPA in consultation with National Trades Union Congress (NTUC), Employment and Employability Institute (e2i) and Singapore Shipping Association (SSA).

The course will help to meet the job demands of bulk carriers, tankers and other crafts operating within Special Limits in and around Singapore waters.

**Course Duration:** 15 weeks

**Course Intake:** April and October (as decided by participating organisations viz MPA, e2i, SSA)

**Course Fees:** S$6,000 + 7% GST (subject to revision)

**Assessment**

Modules will be assessed by in-course assessment.

**Entry Requirements**

Candidates as selected by MPA, e2i and SSA.

**Course Outline**

This will be on-board training for 18 months with the Employers and students will complete e-learning and TARIK’ tab.

**Phase 3**

This will be a full-time 15-week course to be conducted at SMA. On completion of Phase 3 at SMA, candidates will undergo ‘Orals and Simulator Examination’ conducted by MPA.

**Phase 4**

This will cover all mandatory STCW short courses under Manila Amendments to STCW convention.

**Special Limits Course**

**Phase 1**

This is a full-time 15-week course. This course is designed as per the requirements given by MPA in consultation with National Trade Union Congress (NTUC), Employment and Employability Institute (e2i) and Singapore Shipping Association (SSA).

The course will help to meet the job demands of bulk carriers, tankers and other crafts operating within Special Limits in and around Singapore waters.

**Course Duration:** 15 weeks

**Course Intake:** April and October (as decided by participating organisations viz MPA, e2i, SSA)

**Course Fees:** S$5,600 + 7% GST (subject to revision)

**Assessment**

Modules will be assessed by in-course assessment.

**Entry Requirements**

Candidates as selected by MPA, e2i and SSA.

**Course Outline**

This programme is designed for local and international deck personnel aspiring to become Junior Deck Officers. By doing this course, the student can reduce in-cabin time to 8 weeks preparatory course. The student will enrol in Phase II in the next available batch of 8-weeks of ‘in-cabin course’ at SMA. The E-Learning programme allows you to work at your own pace right from the comfort of your home.

**Suitable for**

Candidates appearing for Class 3 Deck Officers Certificate of Competency in Singapore.

**Assumed Skills and Knowledge**

A candidate must fulfill all the following requirements:

- A basic high school qualification with a proficiency in English language
- Sea time must be completed on the ships of more than 3,000 GT engaged in International voyages
- Must have completed at least 18 months of sea time in Deck department (as A/B, O/C or Deck cadet only)

**Application Procedure**

Applying through PACE website, www.pace.edu.sg

**Course Outline**

Once you have enrolled, you will receive an email notifying you of your login details. Use your login details to log into the site. Click on the ‘e-Learning’ tab in the home page to access your courses.

Course covers the following modules, as required by STCW regulation:

- General Ship Knowledge
- Navigation
- Coastal Navigation
- Meteorology
- Mathematics
- Science

**Assessment**

Modules will be assessed by in-course assessment.

**Entry Requirements**

Candidates as selected by MPA, e2i and SSA.

**Course Outline**

This will be on-board training for 18 months with the Employers and students will complete e-learning and TARIK’ tab.

**Phase 3**

This will be a full-time 15-week course to be conducted at SMA. On completion of Phase 3 at SMA, candidates will undergo ‘Orals and Simulator Examination’ conducted by MPA.

**Phase 4**

This will cover all mandatory STCW short courses under Manila Amendments to STCW convention.
Singapore Maritime Academy

**MASTER**

**Special Limits Course**

This is a full-time 8-week course. This course is designed as per the requirements given by MPA for students who have completed 24 months sea time after Chief Mates Special Limit CoC.

The course will help to meet the job demand in Bunker Tankers and other crafts operating within Special Limits in and around Singapore waters.

**Course Duration:** 8 weeks
**Course Intake:** January and July
**Course Fees:** S$9,600 + 7% GST (subject to revision)

**ASSESSMENT**

Modules will be assessed by written examination and in-course assessment as decided by MPA.

**ENTRY REQUIREMENTS**

Candidates who have completed 24 months of sea time after Chief Mates Special Limits Course.

**MARINE ENGINEER OFFICER CLASS 5**

**Special Limits Course**

**PHASE 1**

This is a full-time 16-week course. This course is designed as per the requirements given by MPA in consultation with National Trade Union Congress (NTUC), Employment and Employability Institute (e2i), and Singapore Shipping Association (SSA).

The course will help to meet the job demand for marine engineers in Bunker Tankers and other crafts operating within Special Limits in and around Singapore waters.

**Course Duration:** 16 weeks
**Course Intake:** April and October
**Course Fees:** S$14,000 + 7% GST

**CLASS 1 & 2 (MARINE ENGINEER)**

**Certificate of Competency (CoC) Part A**

Part A level at SMA to qualify for the issuance of Class 2 Engineer and/or Class 1 Engineer CoC, if not exempted by MPA.

- **MA3024 Marine Engineering Drawing & Design**
- **MA3025 Mathematics**
- **MA3029 Electronics**
- **MA3027 Heat**

This Certificate of Competency (CoC) Class 1 & 2 (Part A) course is offered as a Distance Learning Programme (DLP).

**Course Fees:** S$9,400.00 + 7% GST

**ENTRY REQUIREMENTS**

Sea Service Requirements — It is open to candidates as approved by MPA.

**Marine Engineer Officer Class 5 Special Limits Course**

This is a full-time 8-week course. It is designed to provide an avenue for the graduates of Marine Engineer Officer Class 5 Special Limits candidates to progress to a higher position as Chief Engineer on board ships plying within Special Limits waters stipulated by Maritime Port Authority of Singapore (MPA).

**Course Fees:** S$9,400.00 + 7% GST

**ENTRY REQUIREMENTS**

The minimum entry standard requirement to Marine Engineer Officer Class 4 Special Limits (MEO 4 SL) Certificate of Competency (CoC) Course is as follows:

- Candidate who holds a Marine Engineer Officer Class 5 Special Limits Certificate of Competency (CoC) issued by MPA and
- Candidate who has completed a minimum of 24 months of sea time after holding a Marine Engineer Officer Class 5 Special Limits Certificate of Competency (CoC)

**COURSE MODULES**

- **Candidates will be offered a course as approved by MPA.**

**CANDIDATES MUST SUCCESSFULLY COMPLETE THE FOLLOWING MODULES AT SMA**

| Module 1 | Engineering Knowledge |
| Module 2 | Naval Architecture and Ship Construction |
| Module 3 | Marine Electrical Practice |
| Module 4 | Engine Room Simulator Exercises and STCW mandatory courses |

**Preparatory Course**

**Class 1 (Marine Engineer) Certificate of Competency (CoC)**

This 4-week course prepares the candidate for the CoC Class 1 Marine Engineer Officers course. The course is designed to provide an avenue for candidates to qualify for Class 1 Marine Engineer Officers.

**Course Duration:** 4 weeks
**Course Intake:** Once every 2 months
**Course Fees:** S$1,735 + 7% GST

**22-WEEK GRADUATE MECHANICAL ENGINEER (GME) PROGRAMME**

**A Conversion Course for Graduates**

The aim of this course is to train engineers with degrees in Mechanical Engineering from recognised universities in accordance with the Reg. III/1 of STCW 1995 Convention.

This course will issue CoC Class 5 Marine Engineer Officer on successful completion of this course and subsequent completion of the required sea service and oral examination.

Cost: S$14,000 + 7% GST

**ENTRY REQUIREMENTS**

- Completed the CoC 1 & 2 Engineer Course at Singapore Maritime Academy and in possession of a CoC Class 2 Marine Engineer Officer Certificate as issued by MPA.
- Approved sea-going experience on ships powered by main propulsion machinery of 3,000kW propulsion power or more.
- Eligible to appear for CoC Class 1 Marine Engineer Officers.

**COURSE MODULES**

**CANDIDATES MUST SUCCESSFULLY COMPLETE THE FOLLOWING MODULES AT SMA**

| Module 1 | Engineering Knowledge and Marine Structure |
| Module 2 | Mechanical Engineering with Marine Construction |
| Module 3 | Marine Electrical Practice |
| Module 4 | Engine Room Simulator Exercises and STCW mandatory courses |

**COE 5 E-LEARNING (MARINE ENGINEER)**

**Certificate of Competency (CoC)**

This is a web-based self-learning course for anyone who wants to know more about marine engineering.

- For those who wish to take it up as a sea-going career, they need to meet the sea service of the MPA before going for their oral examinations.
SHORT COURSES

SMA also regularly conducts a wide range of mandatory and other short courses for the maritime industry. The contents of these courses, where required, meet the STCW2010 requirements and the completion of some of these courses is a pre-requisite for issue of CoC. General information on some of the important short courses is provided below. However, for more details on entry requirements, course schedules and other updated information, please log on to www.sma.sp.edu.sg or contact our short courses staff at +65 67721917 during working hours (Mon - Fri).

1. MEDICAL FIRST AID ON BOARD SHIP (STCW/IV/4 PARA 1)
This course aims at providing ship officers with a basic knowledge of the principles and practice of first aid. Participants will learn resuscitation and CPR techniques, the treatment of common injuries that could occur on-board ships and the treatment of common ailments. In addition, they will be taught procedures to be followed in the transportation and handling of patients and in seeking medical advice. The possession of a valid Medical First Aid Certificate is mandatory for the issue of CoC Class 3 (Deck) CoC and a valid recognised licence (recognised by the MPA). 

2. MEDICAL CARE ON BOARD SHIP (STCW/IV/4 PARA 2)
This course aims to provide every seafarer, who is designated to be in charge of medical care on board ship, to apply first aid in the event of an accident or illness on board and to be able to provide medical care to the sick and the injured while they remain on-board and be able to participate in co-ordinated schemes for medical assistance to ships. The possession of a valid Medical Care Certificate is mandatory for the issue of CoC Class 1 & 2 Deck Officer. Applicants for the Medical Care Onboard Ship Course must hold a Class 3 (Deck) or Class 5 (Deck) CoC and a valid recognised Prof. in Medical First Aid Certificate (or equivalent).

3. NAVIGATION CONTROL COURSE (STCW/II/2 PARA 2.2)
The course is essentially practical and consists of a series of exercises performed on a Navigation Simulator. It aims at providing training for the maintenance of safe navigation through the use of radar and ARPA and modern navigation systems to assist command decision-making. At the end of the training, participants shall be able to plan, organise and manage a bridge team and, show proficiency in the use of marine radar and ARPA for navigation and collision avoidance and for the coordination and execution of a search and rescue operation. The possession of a Navigation Control Course (NCC) Certificate is mandatory for the issue of CoC Class 1 (Deck) or CoC Class 2 (Deck). All applicants for this course must possess a Radar Observer Certificate, or ENS Certificate or have a valid Harbour Pilot’s licence (recognised by the MPA).

4. BASIC TANKER TRAINING COURSE (STCW/IV/1-1 AND V/1-2)
The course is designed to meet the training requirements of paragraph 12 of Reg V/1 of STCW, which is applicable to people who are likely to be assigned specific duties and responsibilities related to cargo or cargo equipment on-board any tanker (but not with immediate responsibility). The course introduces to participants the possible dangers to human life and the environment from accidents involving tankers carrying petroleum, liquid chemicals or liquefied gas cargoes in bulk. The course also familiarises participants with the cargo handling equipment, systems and procedures on board different types of tankers, the characteristics and hazards of their cargoes, basic safety and emergency procedures, and pollution prevention. Participants for this course are expected to be above 16 years of age, have basic working knowledge of English and merchant ship terminology.

5. ADVANCED TRAINING FOR TANKER CARGO OPERATIONS STCW REG V/1-1 (PARA 4.3.6.3), REG V/1-2 (PARA 4.3)
Each of these three courses is designed to meet the shore-based training requirements of paragraph 2 of Reg V/1-1 of STCW – appropriate to the type of tanker. The course provides specialised training at an advanced level for seafarers likely to be assigned duties as Master, Chief Engineer Officer, Chief Officer, Second Engineer Officer, or for people with immediate responsibility for cargo operations on board the type of tanker that they are likely to serve.

a. Advanced Oil Tanker Course
The course content covers oil tanker safety regulations and codes of practice, design and equipment of oil tankers, cargo characteristics, oil tanker operations, safety measures during repairs or maintenance, emergency operations and pollution control.

b. Advanced Chemical Tanker Course
The course content covers chemical tanker safety regulations and codes of practice, design and equipment of chemical tankers, cargo characteristics, chemical tanker operations, safety measures during repairs or maintenance, emergency operations and pollution control.

c. Advanced Liquefied Gas Tanker Course
The course content covers liquefied gas tanker safety regulations and codes of practice, practical gas tanker firefighting, chemistry and physics related to gas cargoes, gas cargoes, health hazards, cargo containment, cargo handling systems, ship operating procedures, safety practices and equipment, emergency procedures and general principles of cargo operations. (Note: Participants must be medically fit to undertake strenuous gas fire-fighting training.)

6. LNG BUNKERING COURSE (MANAGEMENT AND OPERATIONAL LEVEL)
This course is designed to provide knowledge and understanding to carry out duties related to management and operational aspects for LNG Bunkering using trucks, Bunker Barge, Cassette bunkering or from terminals to the ships, for ships which require LNG as fuel. The course content is as per MPA and Singapore Standards Council Technical Reference TR56-2017 in the areas of LNG Bunkering for management and operational staff. The areas covered in the course includes the fundamental knowledge for a typical LNG bunkering operations including the related corporate governance and management systems, familiarity with the operation, calibration and maintenance of equipment and instrumentation, control and monitoring of bunkering operations, commercial aspects, non-standard and emergency operations and related safety aspects. The course is suitable for persons engaged in LNG Bunkering Operations from Truck to Ship, Ship to Ship via LNG Bunker Barge as well as Terminal to the Ship and Cassette Bunkering.

7. LNG BUNKERING COURSE (SUPPORT AND EMERGENCY LEVEL)
This course is designed to provide knowledge and understanding to carry out duties related to support services and emergency duties for LNG Bunkering using trucks. Bunker Barge. Cassette bunkering from terminals to the ships, for ships which require LNG as fuel. The course content is as per MPA and Singapore Standards Council Technical Reference TR56-2017 in the areas of LNG Bunkering for support and emergency staff. The areas covered in the course includes the fundamental knowledge for a typical LNG bunkering operations, related equipment and instrumentation, emergency operations and related safety aspects. The course is suitable for persons engaged in providing support and emergency duties for LNG Bunkering Operations using trucks, ships or via loading terminals.
# COURSE MODULES

<table>
<thead>
<tr>
<th>COURSE</th>
<th>DURATION</th>
<th>FEES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency Occupational Safety &amp; Survival Functions Training Course</td>
<td>15 days</td>
<td>$680 + GST</td>
</tr>
<tr>
<td>Navigation Control Course. STCW 2010 V/2 PARA 2.2</td>
<td>5 days</td>
<td>$940 + GST</td>
</tr>
<tr>
<td>Basic Tanker Training (OL Chemical &amp; Liquified Gas Tanker) STCW V/1-1-2</td>
<td>9.5 days</td>
<td>$900 + GST</td>
</tr>
<tr>
<td>Advanced Oil Tanker Course STCW 2010 V/1 PARA 4.37</td>
<td>7.5 days</td>
<td>$1,700 + GST</td>
</tr>
<tr>
<td>Advanced Chemical Tanker Course STCW 2010 V/1-1 PARA 6.3</td>
<td>7.5 days</td>
<td>$1,800 + GST</td>
</tr>
<tr>
<td>Advanced Liquid Gas Tanker Course STCW 2010 V/2-2 PARA 4.3</td>
<td>8 days</td>
<td>$1,500 + GST</td>
</tr>
<tr>
<td>Basic Occupational Safety &amp; Security Training Courses. STCW 2010 Rg V/1: V/1 V/1.4</td>
<td>8 days</td>
<td>$1,350 + GST</td>
</tr>
<tr>
<td>Global Maritime Distress Safety System - General Operator’s Certificate Course &amp; Exam. – STCW Rg V/2 PARA 2.2</td>
<td>2 weeks</td>
<td>$520 + GST</td>
</tr>
<tr>
<td>Global Maritime Distress Safety System - Restricted Operator’s Course STCW Rg V/2 PARA 2.2</td>
<td>5 days</td>
<td>$1,200 + GST</td>
</tr>
<tr>
<td>Proficiency in Survival Craft &amp; Rescue Boat – other than a Fast Rescue Boat. STCW 2010 V/2 PARA 13</td>
<td>4 days</td>
<td>$560 + GST</td>
</tr>
<tr>
<td>Proficiency in Fast Rescue Boat Section STCW 2010 A-V/2 IMO Model Course 1.24</td>
<td>3 days</td>
<td>$950 + GST</td>
</tr>
<tr>
<td>Safety Familiarisation Training STCW 2010 V/3 PARA 1</td>
<td>1 day</td>
<td>$590 + GST</td>
</tr>
<tr>
<td>Advanced Fire Fighting Courses. STCW 2010 V/3 PARA 9</td>
<td>5 days</td>
<td>$700 + GST</td>
</tr>
<tr>
<td>Shipboard Training &amp; Assessment Course. STCW 2010 V/6 PARA 12</td>
<td>Either 5 days full-time or via Distance Learning</td>
<td>$910 + GST</td>
</tr>
<tr>
<td>Crowd Management &amp; Safety Training for Passenger Ships – other than Ro-Ro Passenger Ships. STCW 2010 V/3 PARA 6 &amp; 7</td>
<td>1 ½ days</td>
<td>$525 + GST</td>
</tr>
<tr>
<td>Cargo Management. Human Behaviour &amp; Safety for Passenger Ships – other than Ro-Ro Passenger Ships. STCW 2010 V/3 PARA 6 &amp; 7</td>
<td>1 ½ days</td>
<td>$525 + GST</td>
</tr>
<tr>
<td>Electronic Navigation Systems Course. STCW 2010 (I/I) PARA 5</td>
<td>13 evenings plus 2 full Saturdays</td>
<td>$1,700 + GST</td>
</tr>
<tr>
<td>Refresher course for the GMDSS General Operator’s Certificate (GOC)</td>
<td>3 days</td>
<td>$1,210 + GST</td>
</tr>
<tr>
<td>Operational use of Electronic Chart Display and Information Systems (ECDIS). (STCW Code Section A-III/2 Para 2 &amp; Section B-II/1 Para 12)</td>
<td>5 days</td>
<td>$1,100 + GST</td>
</tr>
<tr>
<td>Ship Security Officer (SSO) STCW 2010 V/5 PARA 12</td>
<td>2 days</td>
<td>$900 + GST</td>
</tr>
<tr>
<td>Designated Security Duty Course STCW 2010 V/6 PARA 4</td>
<td>1 day</td>
<td>$220 + GST</td>
</tr>
<tr>
<td>Medical First Aid On-board Ship. STCW 2010 V/4 PARA 1</td>
<td>5 days</td>
<td>$340 + GST</td>
</tr>
<tr>
<td>Medical Care On-board Ship. STCW 2010 V/2 PARA 2</td>
<td>5 days</td>
<td>$340 + GST</td>
</tr>
<tr>
<td>High Voltage Installations Operational Course</td>
<td>1 day</td>
<td>$900 + GST</td>
</tr>
<tr>
<td>High Voltage Installations Management Course</td>
<td>3 days</td>
<td>$520 + GST</td>
</tr>
<tr>
<td>Bridge and Engine Room Resource Management (Management and Leadership)</td>
<td>4 days</td>
<td>$540 + GST</td>
</tr>
<tr>
<td>Bridge and Engine Room Resource Management (Operation)</td>
<td>3 days</td>
<td>$540 + GST</td>
</tr>
</tbody>
</table>

8. GMDDSS GLOBAL MARITIME DISTRESS & SAFETY SYSTEM GENERAL OPERATOR’S CERTIFICATE OF COMPETENCY (GOC) (STCW-V/2 PARA 2.2) This course provides students with knowledge and skills in Global Maritime Distress and Safety System. IMO Model Course 126 and the ability to operate a maritime mobile communication station. The proper use of communication equipment is emphasised via hands-on simulation. Contents include international radio regulations. SOLAS regulation, radio telephony theory and practical satellite communication, search and rescue communications and procedures. Satisfactory completion leads to a GMDSS General Officer’s Certificate of Competency for (for all sea areas) issued by the Infocomm and Media Development Authority of Singapore (IMDA). Candidates for this course must be at least 18 years of age, have basic computer skills, a good working knowledge of English, have no serious impediment of speech, hearing or sight, have normal colour vision and preferentially possess 6 months of sea service.

9. GMDDSS GLOBAL MARITIME DISTRESS & SAFETY SYSTEM RESTRICTED OPERATOR’S CERTIFICATE OF COMPETENCY (ROCG) (STCW-V/2 PARA 2.2) This course provides students with knowledge and skills in Global Maritime Distress and Safety System. IMO Model Course 126 and the ability to operate a maritime mobile communication station on board. Satisfactory completion leads to a GMDSS Restricted Operator’s Certificate of Competency (for Sea Area 1 only – mainly VHF) issued by the Infocomm and Media Development Authority of Singapore (IMDA). Candidates must be at least 18 years of age, have basic computer skills, a good working knowledge of English, have no serious impediment of speech, hearing or sight, have normal colour vision and preferentially have 6 months of sea service.

10. PROFICIENCY IN SURVIVAL CRAFT & RESCUE BOAT (OTHER THAN FAST RESCUE BOAT) (STCW-V/2 PARA 1.3) This course provides training to ensure that participants are able to launch and take charge of a survival craft or rescue boat (other than a fast rescue boat), operate the survival craft engine, manage survivors and use locating devices. The certificate, issued by MPA, is mandatory for the issue of any Class of Marine Engineer Certificate of Competency. This training consists of four modules which may be taken separately. Particular emphasis will be placed on proficiency of rescue boats (other than fast rescue boats). Candidates may be deemed competent to conduct training activity, including entry into water from a height.

11. PROFICIENCY IN SURVIVAL CRAFT & RESCUE BOAT (OTHER THAN FAST RESCUE BOAT) - BRIDGING COURSE This course is intended for seafarers who have passed the Proficiency in Survival Craft course under STCW78 rules (or Lifesaving boat’s under earlier rules) and need to upgrade to STCW requirements by attending this special short course. Particular emphasis will be placed on proficiency of rescue boats (other than fast rescue boats). Candidates may be deemed competent to conduct training activity, including entry into water from a height.

12. SAFETY FAMILIARISATION TRAINING (STCW V/1 PARA 1) This course familiarises participants in the preliminary essentials of safety and personal survival in relation to fire and other emergencies on board ships, according to the stipulated STCW requirements. Participants must be at least 16 years of age and have basic working of English.

13. BASIC OCCUPATIONAL SAFETY & SECURITY TRAINING (STCW REG V/1 PARA 6) This training consists of four modules (Personal Safety & Social Responsibility, Fire Prevention & Fire Fighting, Elementary First Aid and Personal Survival Techniques) which may be taken separately. It aims to train participants in the basic concepts, principles and techniques of personal survival, fire prevention, fire fighting, elementary first aid, personal safety and social responsibilities on board merchant ships, according to the stipulated requirements. This training is intended for those new to the merchant navy, and participants must be at least 16 years of age, physical and medically fit for strenuous activity, and have basic working knowledge of English.

14. ADVANCED FIRE FIGHTING AT SEA (STCW VI/1 PARA 1) A trainees successfully completing this course will, in the event of a fire on a board, ship, be able to take command, organise the personnel effectively and control the fire-fighting operations using those techniques in which he has been trained. Trainees will also have acquired knowledge of fire prevention and an ability to inspect and maintain the fire extinguishing systems and equipment. Participants must possess a valid Fire Prevention & Fire Fighting Course certificate or equivalent (under STCW Reg V/1), be physically and medically fit and have good working knowledge of English. This course is required for all Classes of Deck and Marine Engineering Certificates of Competency.

15. ADVANCED FIRE FIGHTING AT SEA - BRIDGING COURSE This course is intended for Singapore Certificate of Competency (COC) or Certificate of Service (CoS) holders who have completed a Basic Fire Fighting Course conducted by PSA/RMA and need to upgrade to the Advanced Fire Fighting course under STCW requirements. Participants must not be less than 18 years of age and be physically and medically fit and have good working knowledge of English.

16. SHIPBOARD TRAINING & ASSESSMENT (STCW VI/6 PARA 1.2) This course provides knowledge for conducting training and assessment on-board ships. At the end of the course, participants should be able to explain and demonstrate the concepts and techniques of shipboard training and assessment and to apply them effectively on board ship. Participants should be holders of Class 1, 2, 4 & 5 Deck, or Local Trade Master, or Class 1 & 5 MEQ Certificates of Competency.
19. CRISIS MANAGEMENT; HUMAN BEHAVIOUR & SAFETY FOR PASSENGER SHIPS — OTHER THAN RO-RO PASSENGER SHIPS (STCW V/2 PARA 6 & 7) The course is intended for those likely to become Masters or senior officers on passenger ships, other than Ro-Ro passenger ships. Candidates for this course should hold a Deck or Marine Engineer Officer certificate of competency of any class.

20. OPERATIONAL USE OF ELECTRONIC CHART DISPLAY AND INFORMATION SYSTEMS (ECDIS), (STCW CODE SECTION A-V/1 & SECTION B-II/1 PARA 12.1) This course is intended to provide thorough training in the basic knowledge and proper use of Electronic Chart Display and Information Systems (ECDIS) for those who will be in charge of navigation on ships equipped with ECDIS, in order to enhance navigational safety. The training will include (amongst others) the safe operation of ECDIS equipment, a thorough knowledge of the Electronic Navigational Chart (ENC) and its use with navigation sensors; the interpretation and proper use of ECDIS related information, and the knowledge of the ENC tools needed to follow an ECDIS assisted navigation, and the possibility of using ECDIS as an aid to navigation. The syllabus for this course exceeds the requirements of IMO model Course No.127 (2012) and training is conducted on SIMs’s newly equipped 10-xbridge-station ECDIS Simulator. The ECDIS simulator is designed to train both management and operational levels and is fully compliant with the Standards of Training, Certification and Watchkeeping (STCW) 2010 requirements. Candidates for this course should be at least 18 years of age and they must hold a Certificate of Competency as a Navigating Officer. OR Be Deck Cadets who have satisfactorily completed an approved Electronic Navigations Systems Course (ENS) and preferably have participated in supervised Bridge Watchkeeping duties for at least 6 months, and have adequate working knowledge of English (spoken and written).

21. GMDSS GENERAL OPERATOR’S CERTIFICATE (REFRESHER) This course provides students with knowledge, application and operation of GMDSS equipment and able to take the due responsibility for radio communications on board ships during distress incidents. The proper use of communication equipment and operation of the communication systems is emphasised via hands-on simulation. Candidates for this course must be a holder of GMDSS General Operator’s Certificate issued by the Intcomm and Media Development Authority of Singapore (IMDA) that do not meet the sea time requirements (at least 12 months in total of sea going service from the issue date of existing GOC) for revalidation of their certificate.

22. ELECTRONIC NAVIGATION SYSTEMS (STCW V/2 PARA 5) The course aims at providing those who are likely to become officers in charge of a navigational watch, with training for the maintenance of a safe navigational watch through the use of radar, ARPA and use of electronic systems of position fixing and navigational systems including the use of echo-sounders, and compasses. The electronic navigation aids simulators will be extensively used to allow the officers to develop essential skills in handling radar, ARPA and other navigational aids. Entry to the course is open to candidates at least 18 years of age, possessing at least 12 months deck sea service and having a good working knowledge of English.

23. ELECTRONIC NAVIGATION SYSTEMS -- BRIDGING COURSE Intended for seafarers with at least 12 months deck sea service (including 6 months on the Bridge), who have completed a Radar Observers or Radar Interpretation course approved under the previous rules. A full Electronic Navigation Systems Certificate would be issued to those who, after meeting the entry requirements, satisfactorily complete this course. Candidates should have a good working knowledge of English. The resources in the academy have been designed and developed to provide a broad-based, practice-oriented learning environment and are equipped with the latest technology. They are established to complement and reinforce academic studies with focus on practice and application.

24. MARITIME CREW RESOURCE MANAGEMENT COURSE This training programme deals with management in highly operational situations, for example on-board ship’s bridges, in engine rooms, in control rooms of power plants, in aircraft cockpits, and even in medical operating theatres. It is a fact that the way human beings interact, communicate and make decisions in such situations is very similar. So, management errors are also similar. The base for this course was developed in the airline industry as a result of research that showed that most aircraft accidents are caused not by technical errors, but by crew management errors.

25. Dynamic Position (DP) Induction course (Offshore Scheme) The DP Induction (Basic) Course is accredited by the Nautical Institute. It is the first step towards certification of Dynamic Position Operator. The course is a full day training on our latest Dynamic Positioning simulator. The DP simulator has been set up to train DP Operators up to DP 2 class vessel. Upon successful completion of the course, participants will have a basic understanding and basic DP handling of the equipment for a DP vessel. This course is suitable for participants with marine background and wants to serve in the offshore industry. The participants are required to sit for an online examination set by Nautical Institute on the final day of the course. Upon passing the examination and completion of the course, the participants will be issued a Nautical Institute Log Book, where they are required to complete the tasks set by Nautical Institute in their log book before they are allowed to attend the Dynamic Positioning Simulator Course. The participants are also required to record their DP sea time in the log book. The participants are required to clock 60 days of DP sea time before they may apply for their DP license with the Nautical Institute.

26. DP Simulator (Advance) Course The DP Simulator (Advance) Course is accredited by the Nautical Institute and is a full 4-day course. As part of the course requirements, the participants are required to complete the tasks assigned in their logbooks and clock a minimum of 60 days of DP sea time before attending this course. The course exposes the participants to various different routine and emergency operations onboard a DP vessel. On the final day of the course, the participants are required to perform a DP Set-up Assessment and also required to sit for an online examination set by the Nautical Institute. After passing the online examination and assessment of the course, the participants are required to complete another 60 days of DP sea time before they may apply for their DP license with the Nautical Institute.

27. THE SHIP SECURITY OFFICER COURSE STCW VI/5 PARA 12 The course aims to provide knowledge to those who may be designated to perform the duties and responsibilities of a Ship Security Officer (SSO), as defined in section A-116 (and section A-112) of the ISPS Code as amended, and in particular the duties and responsibilities with respect to a security of a ship. The course is a full day on the day before the DP Vessel Security Plan and in liaison with the Port Facility Security Officer (PFSO).

LABORATORY/WORKSHOPS The new Advanced Engine Room Simulator consists of a classroom with one instructor station and 12 student stations which house the following ship type loaded in each station:

- ERS MAN B & W SLOMOMC, 2-Stroke Engine, 23 000 MHP
- Very Large Crude Carrier – MCR : 1TMD46 @ 74 rpm with 2 diesel generators, 1 turbocharger, 1 shaft generator and 180 kw exhaust gas boiler.

The VLCC and Container Vessel simulators come with Virtual Simulation Application (i.e. Walk-Through Virtual Engine Room application) which allow users to experience interactive virtual animation of the entire engine room.

- ERS DIESEL, ELECTRIC DE22 – CRUISE VESSEL
- Large cruise vessel with 2 synchronous propulsion motors, each rated 14 MW emergency generator. Steam Plant include a D-type steam boiler, exhaust boiler 4 DCOs, Ballast turbine and condensing and feed water system.

- ERS M1 MAK 8E43MC, 4-Cylinder engine – CONTAINER VESSEL
- Container Ship - 4 stroke diesel engine of 8000kw connected to CP propeller. Electric power plant includes two diesel generators and a main shaft generator. The steam plant includes oil fired boiler and exhaust gas boiler.

28. SECURITY AWARENESS TRAINING FOR SEAFARERS WITH DESIGNATED SECURITY DUTIES STCW VI/1 PARA 4 This course is intended to provide the knowledge required to enable personnel to do their designated security duties as required by the vessels Ship Security Plan (SSP). This would be to enhance ship security in accordance with the requirements of Chapter XI-2 of SOLAS 74 as amended: the ISPS Code, and section A-VI/4-2 of the STCW Code as amended.

ENERGY MANAGEMENT LABORATORY
- Adds the learning of the fundamentals of fuel mechanics in pumps and pumping systems
- Adds the learning of the thermodynamic performance of piston compressors, heat engines, refrigerating and air-conditioning plants

MECHANICS LABORATORY
- Analysis of static and dynamic mechanical system using simple mechanisms and simulated machines
- Analysis of material strength and section characteristics under tension, bending and torsional conditions

FUEL & LUBE-OIL LABORATORY
- Analysis of physical behaviour and chemical characteristics of typical marine fuels and lube oils
- The Thermo Mechanics Laboratory is designed to enhance the classroom learning experience and is composed of three laboratories
The Workplace Safety & Health (WSH) Laboratory provides an environment for the study of the fundamentals in shipboard safety particularly in the areas of fire fighting and personal safety. Realistic installations and equipment of the latest design are in use. It is developed to support courses in:
- Basic fire fighting (principles and practice)
- Advanced fire fighting (strategy and tactics)
- Shipboard safety management
- Hazardous Materials Incident Response
- Industrial Hygiene & Industrial safety
- Occupational Ergonomics

The Control Engineering Laboratory is equipped with a number of technology and control systems to reinforce classroom learning in the following areas:
- Process Measurement Technology
- Automatic Feedback Control Systems
- Pneumatic and Electronic Logic Circuits
- Programmable controllers
- Boiler Process Control Systems
- Basic Digital Electronics

The Boiler House offers a learning environment similar to that found in steam generation plants. It is equipped with two operational boilers and other steam teaching aids to support the following learning objectives:
- Operations of shipboard auxiliary boilers
- Familiarisation of various boiler mountings
- Familiarisation of modern boiler controls
- Practices for safe and economic operations of steam systems

The Integrated Simulation Centre (ISC) was jointly set up by the MPA and SMA to further enhance the quality and efficiency of maritime training conducted in Singapore using simulators. It is the official venue for MPA examinations on topics related to maritime simulations. ISC simulators offer different realistic scenarios for training of ship officers and crew in a risk-free environment. Students will experience first-hand state-of-the-art technology employed for seafarers’ trainings and shipping operations via sessions on the Navigation Bridges and the Engine Room Simulators. Other advanced facilities such as the Dynamic Positioning Offshore Handling Laboratory and the Liquid Cargo Handling Simulators which are housed within the ISC also add to the range of maritime training capabilities it offers. Although developed primarily for the training of shipboard personnel, the ISC is also capable of conducting marine research and development for port planning.

In the Full-Mission Engine Room Simulator the comprehensive, realistic, interactive and dynamic systems simulate real-world ship propulsion plants. It is housed in a purpose-built complex to support the following learning objectives:
- Exposure to the latest techniques in data acquisition, presentation and control
- Interactive experience with fully integrated and dynamic systems
- Familiarisation with operational routines and procedures
- Team work
- Process analysis and condition and performance monitoring
- Failure management and loss prevention
- Man-machine interfacing

The Full-Mission Ship-handling Simulator consists of five Navigating Bridges, three Instructor Stations and Briefing/Debriefing Room. The bridges have a horizontal field of view (HFOV) 240 and are fully equipped with the latest navigational equipment. All the bridges are fully equipped with state-of-the-art Computer Generated Image (CGI) system to create a highly realistic environment using improved technology of 1080p 120hz LED displays.

In addition to facilitating R&D in the field of navigation, the simulator also facilitates the following areas of training:
- Bridge Watchkeeping Principles & Procedures
- Electronic Navigation System integrations and operations
- Safe and efficient operations principles of RADAR and ARPA
- Safe and efficient navigation using ECDIS
- Bridge Team Work & Management
- Bridge Resource Management
- Basic & Advance Shiphandling
- Ship to Ship transfer and approach
- Shipboard Emergencies & Crisis Management
- Anti Piracy Navigation
- Ice Navigation

The Maritime I.T. Laboratory is equipped with the latest ship management software programmes. Also, students can access the online Portnet and Tradenet Systems.

The Liquid Cargo Handling Simulator (LCHS) models the cargo and ballast handling system/s of existing and modern tankers, their relevant auxiliaries, and the terminal facilities and processes required for tanker safety operations.

The LCHS has the overall ability and capacity to provide simulation, through the use of computer software models, covering all the processes in relation to existing and modern liquid cargo-handling system, cargo vapour recovery system and ballast handling systems, and other related auxiliary systems. for the types of ships and tanker terminals stated below:
- Multigrade VLCC
- Multi-grade Petroleum Product Tanker
- Multi-grade Chemical Tanker
- LNG Tanker (Membrane Type & Moss Tank)
- LPG Tanker

The Integrated Simulation Centre (ISC) was jointly set up by the MPA and SMA to further enhance the quality and efficiency of maritime training conducted in Singapore using simulators. It is the official venue for MPA examinations on topics related to maritime simulations. ISC simulators offer different realistic scenarios for training of ship officers and crew in a risk-free environment. Students will experience first-hand state-of-the-art technology employed for seafarers’ trainings and shipping operations via sessions on the Navigation Bridges and the Engine Room Simulators. Other advanced facilities such as the Dynamic Positioning Offshore Handling Laboratory and the Liquid Cargo Handling Simulators which are housed within the ISC also add to the range of maritime training capabilities it offers. Although developed primarily for the training of shipboard personnel, the ISC is also capable of conducting marine research and development for port planning.

In the Full-Mission Engine Room Simulator the comprehensive, realistic, interactive and dynamic systems simulate real-world ship propulsion plants. It is housed in a purpose-built complex to support the following learning objectives:
- Exposure to the latest techniques in data acquisition, presentation and control
- Interactive experience with fully integrated and dynamic systems
- Familiarisation with operational routines and procedures
- Team work
- Process analysis and condition and performance monitoring
- Failure management and loss prevention
- Man-machine interfacing

The Full-Mission Ship-handling Simulator consists of five Navigating Bridges, three Instructor Stations and Briefing/Debriefing Room. The bridges have a horizontal field of view (HFOV) 240 and are fully equipped with the latest navigational equipment. All the bridges are fully equipped with state-of-the-art Computer Generated Image (CGI) system to create a highly realistic environment using improved technology of 1080p 120hz LED displays.

In addition to facilitating R&D in the field of navigation, the simulator also facilitates the following areas of training:
- Bridge Watchkeeping Principles & Procedures
- Electronic Navigation System integrations and operations
- Safe and efficient operations principles of RADAR and ARPA
- Safe and efficient navigation using ECDIS
- Bridge Team Work & Management
- Bridge Resource Management
- Basic & Advance Shiphandling
- Ship to Ship transfer and approach
- Shipboard Emergencies & Crisis Management
- Anti Piracy Navigation
- Ice Navigation

The Maritime I.T. Laboratory is equipped with the latest ship management software programmes. Also, students can access the online Portnet and Tradenet Systems.

The Liquid Cargo Handling Simulator (LCHS) models the cargo and ballast handling system/s of existing and modern tankers, their relevant auxiliaries, and the terminal facilities and processes required for tanker safety operations.

The LCHS has the overall ability and capacity to provide simulation, through the use of computer software models, covering all the processes in relation to existing and modern liquid cargo-handling system, cargo vapour recovery system and ballast handling systems, and other related auxiliary systems. for the types of ships and tanker terminals stated below:
- Multigrade VLCC
- Multi-grade Petroleum Product Tanker
- Multi-grade Chemical Tanker
- LNG Tanker (Membrane Type & Moss Tank)
- LPG Tanker
Mathematics & Science

School of Mathematics & Science aims to build a strong foundation in mathematics and science in our students to enable them to master their core disciplines so as to meet the needs of industry and university. The school offers both core and electives in Mathematics, Computing, and Physics to students in Engineering, Technology, and Business courses. It also offers the Specialist Diploma in Data Science to meet the needs of the industry.

POLYTECHNIC FOUNDATION PROGRAMME

The one-year Polytechnic Foundation Programme (PFP) offered by SP is broad-based and multi-disciplinary with the aim of providing students with a strong foundation in English language, Mathematics and Science. The programme offers a practical-oriented curriculum to prepare polytechnic-bound Normal (Academic) students well for the course of their choice in SP.

The SP PFP will be conducted through small-group teaching to ensure that students receive ample support in their academic studies. Active and authentic learning will be incorporated throughout the programme to promote students’ engagement in the learning process. Through multi-disciplinary project work, students will also be exposed to basic Design Thinking skills that will enable them to conceive innovative solutions that meet the needs of users.

Besides the structured curriculum, students will also be participating in out-of-classroom activities such as industry visits and field trips to allow them to connect to their course of study.

Students are required to take one Sports for Life (SFL) module during PFP in SP. Students will go through Strength and Conditioning programme in semester one and Games Series programme in semester two.

SP offers a number of diploma courses under the PFP. Courses are categorised as Science and Technology based or non-Science and Technology based. Entry requirements as well as the diploma courses offered can be accessed through the PFP website at http://www.sp.edu.sg/pfp.
**POLY-WIDE ELECTIVE MODULES**

**ELECTIVE MODULES IN MATHEMATICS, PHYSICS AND DATA ANALYTICS**

- **Build a solid foundation** in mathematics and physics and develop analytical, logical thinking and problem solving skills.
- **Build broad-based skill sets** in the area of statistics and data analysis, data visualization and artificial intelligence.

**ADVANCED MATHEMATICS MODULE ELECTIVE TRACK**

<table>
<thead>
<tr>
<th>MODULE CODE</th>
<th>MODULE</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPM061</td>
<td>Advanced Mathematics I</td>
<td>60</td>
</tr>
<tr>
<td>EPM062</td>
<td>Advanced Mathematics II</td>
<td>60</td>
</tr>
<tr>
<td>EPM063</td>
<td>Advanced Mathematics III</td>
<td>60</td>
</tr>
</tbody>
</table>

**SPECIALIST DIPLOMA IN DATA SCIENCE**

**Part Time**

This is a one-year part-time course that provides training in the increasingly important area of data science and analytics. The course is conducted in the evening.

**ENTRY REQUIREMENTS**

Applicants to this course must have, as a minimum requirement, a polytechnic diploma or higher qualification. Applicants are expected to be proficient in mathematics at the diploma level or its equivalent.

**COURSE ASSESSMENT**

Students must complete and pass the assessments of all the modules in the two post-diploma certificates in order to be awarded the specialist diploma.

**COURSE STRUCTURE**

Students are awarded the Specialist Diploma in Data Science after successfully completing two post-diploma certificates (PDCs) in one of the following possible progressions.
SHORT COURSES

The school also offers short courses in various areas in Data Analytics designed to meet the skills needs of working professionals in this area. These short courses equip professionals with necessary skills to undertake data analytics related work with the industry.

ESSENTIAL STATISTICAL ANALYSIS
This course aims to equip participants with basic understanding of the main statistical concepts to prepare data for statistical analysis. It carries out and interpret statistical analysis such as exploratory analysis and testing for differences and associations.

DATA VISUALIZATION WITH PYTHON
The course aims to introduce participants to the data analytic and visualization workflow. Throughout the course, Pandas and Seaborn libraries will be used to perform statistical and visual analysis of data. This will be incorporated into a Jupyter notebook. The emphasis will be on the skills needed in processing and understanding big data through visual analysis. The importance of reproducible research and collaboration within data analytics teams will be highlighted.

DATA VISUALIZATION WITH PYTHON
The course aims to introduce participants to the data analytic and visualization workflow. Throughout the course, Pandas and Seaborn libraries will be used to perform statistical and visual analysis of data. This will be incorporated into a Jupyter notebook. The emphasis will be on the skills needed in processing and understanding big data through visual analysis. The importance of reproducible research and collaboration within data analytics teams will be highlighted.

FUNDAMENTAL DATA ANALYSIS USING EXCEL
This course provides a basic understanding of data linking of data tables, and creation of data models. An understanding of simple and advanced level functions in Excel will be provided. Participants learn skills to develop a dashboard that answers a given problem statement. They will use available functions and features to develop dashboard, to organize and plan the items in a dashboard and to provide insights, KPI reporting and informed decision making.

TRAINING FACILITIES

COMPUTER LABORATORY
The computer laboratory provides students from various schools with practical training in computer programming and computer applications. Students will have opportunities to gain competence in a broad range of computing skills. The laboratory is also used for the teaching of mathematics. The laboratory is designed to allow a better integration of IT into the mathematics curriculum. It is equipped with a networking system to create a dynamic and interactive teaching and learning environment for both lecturers and students. Students are allowed to explore mathematical and scientific concepts using the latest application software. This helps to inspire them to think creatively in this IT-enhanced environment.

Certification examinations like Microsoft Office Specialist (MOS) are conducted in the laboratories as well. Short courses are often conducted in the laboratories for industrial and business personnel.

DEVELOPMENT LABORATORY
The development laboratory provides a space for staff to brainstorm, design, construct and develop experiments or activities related to teaching and research. The laboratory is equipped with a 3D-printer, Arduino kits and other tools to support research and development. It also consists of multiple wall partitions, movable tables and chairs to facilitate small group discussions. There are also display cabinets to showcase 3D models and projects.

LEARNING LABORATORIES
The learning laboratories support the teaching of Physics, Chemistry/Biology and Engineering and Technology. Project modules of the Polytechnic Foundation Programme. Students will have opportunities to strengthen their understanding of scientific concepts and gain hands-on practical skills through experiments and projects conducted in the laboratories. The learning laboratory for Chemistry/Biology is managed by the School of Chemical & Life Sciences. The design and layout of the learning laboratories encourage collaborative learning. Each laboratory is equipped with the necessary IT, video and audio systems to support the teaching and facilitation of the learning environment for the students.

MICROSOFT OFFICE SPECIALIST (MOS)
The School of Mathematics & Science provides administrative support for students taking the Microsoft Office Specialist (MOS) certification in software application skills.
COMMUNICATION SKILLS

LSC offers a range of communication skills modules to full-time and part-time students. These modules help you in your academic studies, employment and life skills.

All academic schools select a number of modules from the list below for inclusion as core modules in the full-time and part-time diploma courses, as specified in their course structures:

- Communicating for Personal & Team Effectiveness
- Communicating for Project Effectiveness (Proposal)
- Communicating for Project Effectiveness (Report)
- Communicating for Professional Effectiveness
- Interpersonal Skills & Proposal Writing
- Effective Business Communication Skills

EDUCATION AND CAREER GUIDANCE

There are two Educational and Career Guidance modules offered to all full-time students. These modules cover 3 broad areas of personal management, learning & career exploration, and career management.

In the area of personal management, you will learn how to develop a positive career self-concept and interact with others positively and effectively. In the area of learning & career exploration, you will explore career options and understand the importance of embracing lifelong learning. Finally, in the area of career management, you will learn how you can take ownership of your career and prepare for employability.

PFP

Started in AY2013/2014, this programme is offered to Secondary 4 Normal (Academic) stream students who have completed their GCE N/A-Level examination. This year-long programme prepares students for their academic studies in the polytechnic.

LSC offers three modules in the PFP. If you are enrolled in the PFP, you will take the modules below as specified in your curriculum structure:

- Foundation Language & Communication Skills
- Culture, Aesthetics & Society
- Active & Effective Citizenship

SPEAR

The SPEAR Programme is an institutional programme offered to all students in SP. The acronym stands for the key skills and qualities that the SPEAR Programme hopes to drive: Self-directedness, Perspectives, Empathy, Articulation and Resilience. Through the programme, we will empower you to articulate an informed point of view, identify and communicate different perspectives in local and global issues and encourage you to develop empathy for those around us. We will also equip you with the mindsets and skills to be self-directed learners who are able to overcome challenges in your learning.

The SPEAR programme comprises three semester-long modules offered over one-and-a-half years:

- Critical & Analytical Thinking (CAT)
- Narrative Thinking (NAT)
- Design Thinking for Social Innovation (DTSI)*

*Design Thinking for Social Innovation (Overseas), DTSI(O), is an equivalent overseas version of the DTSI module.

LIFE SKILLS & COMMUNICATION HUB (LSC HUB)

Recognising that life skills and communication are critical in the industry, LSC established the Life Skills & Communication Hub (LSC Hub), previously known as the “Business Communication Centre”, in 1994. The LSC Hub is the training arm of LSC and is committed to providing high quality life skills and communication programmes as well as language courses to private and public organisations in Singapore and the region. The LSC Hub’s forte lies in its customisation of short and intensive courses for organisations, companies and schools. Our trainers are highly qualified experts in the various fields of life skills, communication and language.
EDUCATIONAL DEVELOPMENT
EDU pursues pedagogical innovations, translates new research findings into practical curriculum applications and leads educational initiatives such as SP’s Holistic Education, Conceive-Design-Implement-Operate (CDIO), Intrinsic Motivation, Self-Directed Learning, Flipped Learning and Pedagogy for the Professions.

PEDAGOGY FOR THE PROFESSIONS
EDU helps to chart SP’s pedagogical direction in preparing our students for work, life and the world through Pedagogy for the Professions. The four dominant teaching methods i.e. Project with CDIO elements, Concept-Mapping, Simulated Practice and Utility are used by our courses to prepare our students with the knowledge, skills, values, attitudes and behaviours for them to grow and to innovate in their respective professions.

Underpinning these methods are four principles of learning experiences: workplace practice oriented; inquiry-based; active and experiential; and collaboration. Intrinsic Motivation (CDIO) is a framework of designing curricula to engage learning activities and interactions that promote a sense of engagement, connectedness and achievement, and through which students develop passion and purpose for their disciplines.

SELF-DIRECTED LEARNING
In an increasing digital world of technology disruption and industry transformation, there is an increasing need to help develop our students to be self-directed learners to take ownership and responsibility for their own learning. EDU assists our lecturers to plan and develop interventions through the curriculum and through our pedagogy for the professions as well as offering a Poly-wide elective to help students become more self-directed.

CET PEDAGOGY
EDU also assists SP’s consultancy centres and various enterprises to implement workplace learning solutions. Leveraging on the mindset, skillset and behaviours model, EDU collaborates with relevant stakeholders to design training interventions and solutions that meet training needs. EDU also offers professional development and consultancy in the area of teaching adults to prepare and support our lecturers in the area of adult teaching and learning.

EDU works closely with diploma course management teams and respective academic mentor in Singapore Polytechnic to review their curriculum so as to ensure alignment of desired graduate outcomes, pedagogical approaches and assessment means, aimed to develop SP graduates sought-after by their industry. Referring to the Skills Framework, the curriculum of SP diplomas are kept updated, compact and relevant so as to allow curriculum space for students to take on elective module to learn beyond their curriculum, providing an impetus for lifelong self-directed learning.

CURRICULUM REVIEW
EDU also assists SP’s consultancy centres and various enterprises to implement workplace learning solutions. Leveraging on the mindset, skillset and behaviours model, EDU collaborates with relevant stakeholders to design training interventions and solutions that meet training needs. EDU also offers professional development and consultancy in the area of teaching adults to prepare and support our lecturers in the area of adult teaching and learning.

EDU pursues pedagogical innovations, translates new research findings into practical curriculum applications and leads educational initiatives such as SP’s Holistic Education, Conceive-Design-Implement-Operate (CDIO), Intrinsic Motivation, Self-Directed Learning, Flipped Learning and Pedagogy for the Professions.

CONCEIVE-DESIGN-IMPLEMENT-OPERATE (CDIO) FRAMEWORK
The CDIO framework was developed by MIT to improve engineering education by aligning it to real-world contexts and practices. EDU assists schools/departments in adapting the framework to their curricula. It also participates in the international CDIO collaborations network and shares its CDIO experience with educators from the region. SP is currently the Co-director of the CDIO International Council.

INTRINSIC MOTIVATION
The initiative on intrinsic motivation (IM) aims to develop a growth mindset and self-directedness in students through a learning environment that supports their psychological needs of autonomy, relatedness and competence. EDU works with course chairs on re-designing curricula to include engaging learning activities and interactions that promote a sense of engagement, connectedness and achievement, and through which students develop passion and purpose for their disciplines.

Evaluation of teaching practices and Simulated Practice are used by our courses to prepare our students with the knowledge, skills, values, attitudes and behaviours for them to grow and to innovate in their respective professions.

Underpinning these methods are four principles of learning experiences: workplace practice oriented; inquiry-based; active and experiential; and collaboration. Intrinsic Motivation (CDIO) is a framework of designing curricula to engage learning activities and interactions that promote a sense of engagement, connectedness and achievement, and through which students develop passion and purpose for their disciplines.

SELF-DIRECTED LEARNING
In an increasing digital world of technology disruption and industry transformation, there is an increasing need to help develop our students to be self-directed learners to take ownership and responsibility for their own learning. EDU assists our lecturers to plan and develop interventions through the curriculum and through our pedagogy for the professions as well as offering a Poly-wide elective to help students become more self-directed.

CET PEDAGOGY
EDU also assists SP’s consultancy centres and various enterprises to implement workplace learning solutions. Leveraging on the mindset, skillset and behaviours model, EDU collaborates with relevant stakeholders to design training interventions and solutions that meet training needs. EDU also offers professional development and consultancy in the area of teaching adults to prepare and support our lecturers in the area of adult teaching and learning.

CURRICULUM REVIEW
EDU works closely with diploma course management teams and respective academic mentor in Singapore Polytechnic to review their curriculum so as to ensure alignment of desired graduate outcomes, pedagogical approaches and assessment means, aimed to develop SP graduates sought-after by their industry. Referring to the Skills Framework, the curriculum of SP diplomas are kept updated, compact and relevant so as to allow curriculum space for students to take on elective module to learn beyond their curriculum, providing an impetus for lifelong self-directed learning.

FLIPPED CLASSROOM
With effect from AY19, all Year 1 students will experience 1 module that adopts the Flipped Classroom teaching method. All new academic staff are prepared for their professional teaching role at SP through the Certificate in Teaching (Higher Education). This is a compulsory programme that provides key induction into good practices in learning design, teaching and assessment, as well as the use of information communication technologies in supporting student learning. An abridged version of the programme is offered to Adjunct Lecturers.

PROFESSIONAL DEVELOPMENT FOR ACADEMIC STAFF
EDU offers an extensive range of training, specialised workshops and educational talks on current topics relating to teaching and learning. Workshops are tailored to key SP thrusts as well as specific school and department needs. The programmes are part of EDU’s continuing efforts to provide the required training and support for SP’s pedagogical leaders and lecturers.

CERTIFICATE IN TEACHING (HIGHER EDUCATION)
All new academic staff are prepared for their professional teaching role at SP through the Certificate in Teaching (Higher Education). This is a compulsory programme that provides key induction into good practices in learning design, teaching and assessment, as well as the use of information communication technologies in supporting student learning. An abridged version of the programme is offered to Adjunct Lecturers.

COURSE CHAIR PROGRAMME
Programme for the Course Chairs provides support in the areas of Course direction, design, management and administration matters, including curricula design for Enhanced Internship and Earn-and-Learn Programmes. It aims to prepare course chairs for their dual roles of pedagogical leaders and course managers.

ACADEMIC MENTOR PROGRAMME
EDU conducts the Academic Mentor (AM) programme for academic staff keen to hone their pedagogic literacy as they take on their role as academic mentors. The Academic Mentor programme aims to build a high level of pedagogic competence and the ability to mentor and coach academic faculty. The training will equip academic mentors with the capability to lead educational initiatives related to teaching quality and innovation.

OTHER PROFESSIONAL DEVELOPMENT ACTIVITIES
As part of its professional development efforts, EDU also hosts the annual Excellence in Education and Training Convention (EECT) which aims to introduce staff to a wide range of innovative educational practices. The EECT is also a platform to honour SP staff who, have excelled in teaching, pastoral care, education technology or other dimensions of teaching and learning.

EDU offers video production facilities and multimedia design expertise to academic schools and departments. The Media Production Centre provides audio, video, animation and graphic production for the creation of web-based instructional materials and video packages. Services include:

- Teaching and Learning videos
- Instructional, documentary and animation style
- E-Learning multimedia content
- Basic Video Production Mini-Workshops for staff and students
- Promotional videos for schools and departments
- Campus-level events video coverage

EDU also offers Bootcamps for academic staff embarking on the Flipped Classroom journey.

EDU assists our lecturers to plan and develop interventions through the curriculum and through our pedagogy for the professions as well as offering a Poly-wide elective to help students become more self-directed.

EDU pursues pedagogical innovations, translates new research findings into practical curriculum applications and leads educational initiatives such as SP’s Holistic Education, Conceive-Design-Implement-Operate (CDIO), Intrinsic Motivation, Self-Directed Learning, Flipped Learning and Pedagogy for the Professions.

The mission of the Department of Educational Development (EDU) is to enhance the quality of teaching and learning in Singapore Polytechnic (SP) by coordinating the professional development of academic staff and assisting academic schools in developing forward-looking curriculum and strategies.

The key functions of EDU include encouraging and leading educational innovations and initiatives; providing consultancy in curriculum, teaching, learning and assessment; applying educational research to improve pedagogical practices; promoting the use of Self-Directed Learning and EdTech; and providing multimedia production services for e-learning content creation.

EDU offers video production facilities and multimedia design expertise to academic schools and departments. The Media Production Centre provides audio, video, animation and graphic production for the creation of web-based instructional materials and video packages. Services include:

- Teaching and Learning videos
- Instructional, documentary and animation style
- E-Learning multimedia content
- Basic Video Production Mini-Workshops for staff and students
- Promotional videos for schools and departments
- Campus-level events video coverage

EDU is the custodian department in SP’s drive to infuse EdTech into teaching and learning. It works closely with academic schools to conceptualise and implement pedagogically viable blended learning e.g. Flipped Classroom, and the design and development of interactive courseware and instructional videos.

EDU manages an enterprise learning management system. The system allows students to access their learning materials, participate in quizzes and discussions, and submit assignments anytime, anywhere. EDU also evaluates and recommends relevant software applications.

EDU assists our lecturers to plan and develop interventions through the curriculum and through our pedagogy for the professions as well as offering a Poly-wide elective to help students become more self-directed.

EDU pursues pedagogical innovations, translates new research findings into practical curriculum applications and leads educational initiatives such as SP’s Holistic Education, Conceive-Design-Implement-Operate (CDIO), Intrinsic Motivation, Self-Directed Learning, Flipped Learning and Pedagogy for the Professions.
BA003M CHINESE BUSINESS RESEARCH AND IMMERSION Enables students to participate in an immersion programme to China. Students will research on a specific aspect of Chinese business practice and on an industry-specific issue in the course of this immersion.

BA009M GOVERNANCE AND AUDIT PRACTICUM Enables students to apply their theoretical concepts and knowledge in an audit practice, through a practical auditing/accounting work attachment experience in a voluntary welfare organisation/charity body.

BA010M BUSINESS AND PERSONAL INSIGHTS AND PERSPECTIVES Enables students to get a broader perspective of the business and economic environment, to explore strategy models and apply these in a business case study analysis. It also allows them to develop personal skills in negotiations, impromptu and public speaking.

BA026M RESEARCH PROJECT Enables students to participate in a joint research project on issues such as governance of voluntary welfare organisations and the corporate giving culture in Singapore Stock Exchange listed companies.

BA0162 MEDIA AND PROMOTIONAL PUBLICITY Provides students with an understanding of the importance of media relations and the different ways to generate publicity through the mass media. Students also learn how companies, their products and services can be promoted using special events, corporate websites, newsletters and audio-visual materials.

BA0163 MARKETING COMMUNICATIONS Aims to provide students with an understanding of the role of promotion within the overall marketing mix strategy of an organisation. It covers some contextual topics such as the communications process, consumer decision-making and promotional planning, as well as the core topics pertaining to the use of Advertising, Sales Promotion, Public Relations, Point of Purchase and Personal Selling in an integrated promotional mix.

BA0073 SUPPLY CHAIN MANAGEMENT Introduces the concepts and challenges of supply chain management (SCM). It covers the theoretical principles underlying key supply chain processes and also provides some insights into how these principles are applied in real-world situations. Students will also understand the role of information technology in SCM.

BA0076 GLOBAL BUSINESS ENVIRONMENT Aims to provide students with the skills and knowledge for global market analysis and the formulation of international strategies. It will provide students with an understanding of the rationale for developing an international economy. The impact of environmental forces, the role of international organisations and groupings like WTO and NAFTA, and opportunities in emerging markets.

BA0193 SELLING AND SALES MANAGEMENT Provides students with an understanding of the principles and techniques of personal selling and sales management. 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, students will be taught how to analyse the sales environment, do a sales plan, organise a sales force, forecast sales and design a sales compensation scheme.

BA0206 INDEPENDENT STUDY PROJECT Seeks to develop the student’s critical understanding of a field of study and their capacity to pursue independent research, culminating in the research assignment which will demonstrate their knowledge and competence in the chosen field of specialisation.

BA0217 FUNDAMENTALS OF ECONOMICS Provides students with an overview of concepts and issues in both micro and macro economics. Topics include scarcity and demand, supply and cost, revenue and price, economic cycles and economic indicators, fiscal and monetary policies, and international trade and finance.

BA0220 ORGANISATIONAL MANAGEMENT Provides students with basic knowledge in management principles and organisational behaviour. Focuses on topics such as decision-making, organisational attitudes, personality, group dynamics, motivation, leadership and interpersonal skills.

BA0227 ESSENTIALS OF FINANCE Provides students with a basic understanding of financial terms and concepts with specific emphasis on equipping them with the ability to read financial statements and reports.

BA0231 CUSTOMER RELATIONSHIP MANAGEMENT Introduces the basic concept of customer relationship management and its strategic importance in today’s business environment. It also discusses the various tools commonly employed by organisations to manage customer data, develop customer loyalty and improve customer profitability.

BA0232 BUSINESS PLANNING FOR NEW VENTURES Introduces students to the process of starting a new venture. It provides students with a basic understanding of the financial, operational and marketing issues involved in setting up and managing a small business.

BA0247 INTERNET PROGRAMMING Provides fundamental concepts and skills for Internet programming. Students will be taught client-side web programming using Visual C++, Students will learn to create Active Server Pages (ASP) and Active Data Objects (ADO) and integrate Microsoft Access database into Web applications using ADO and Open Database Connectivity (ODBC).

BA0275 BUSINESS ACCOUNTING This module is designed to introduce students with an understanding of the fundamental accounting principles underlying accounting practice, from the preparation of accounting records to the financial statements of a company. It will also cover accounting for cash, property, plant and equipment, costing, income statements, vertical analyses. Budgeting, breakeven/loss and profit calculations as well as cost volume profitability analysis. An overview of the strategic marketing management process, an appreciation of the marketing environment, the concept of market orientation, target market selection, as well as the management of the marketing mix elements that include the 4P’s namely: Product, Price, Place and Promotion.

BA0330 BUSINESS AND TECHNOLOGY Technology can transform business and therefore businesses must understand the technology available to them. This module teaches students the emerging trends in technology as they relate to a wide variety of businesses. Students will also learn strategies to apply technology based on business models. At the end of the module, students will be able to identify and recommend various technology tools and platforms to transform business in an industry specific to their course of study.

BA0302 INTERNATIONAL MANAGEMENT Exposes students to the knowledge and skills needed to function in a multinational corporation. It focuses on key concepts and techniques essential to operate in a multinational environment and adapting management practices to different economic, political and cultural environments.

BA0303 OVERSEAS BUSINESS STUDY MISSION Requires students to go on an intensive study mission to a foreign country to witness and experience how international business and trade are conducted and to seek business opportunities. Students learn by attending seminars, visiting government ministries and companies. They will be given ample opportunities to meet and network with business people and visit special events such as trade shows.

BA0304 FOREIGN LANGUAGE AND CULTURAL SKILLS Provides students with an understanding of the cultural and linguistic elements of foreign countries.

BA0306 MARKETING INTELLIGENCE Covers the role that marketing intelligence plays in modern businesses. Students will learn some insights into how these principles are applied in real-world situations. Students will also be exposed to INCO farms, shipping procedures and shipping terminologies.

BA0307 ACCOUNTING Provides students with an understanding of the basic concepts and principles of accounting. It also introduces the double entry concept, accounting process, accounting for cash and bank, and the financial statements of service and merchandising businesses.

BA0308 PRINCIPLES OF IMPORT-EXPORT TRADE Introduces students to the basics of trade, preparation of invoices, export and importing, and the various shipping documents commonly encountered in shipping goods internationally by both sea and air freighters. Students will also be exposed to INC0 terms, shipping procedures and shipping terminologies.

BA0313 ESSENTIALS OF FINANCIAL MANAGEMENT Provides students with an understanding of basic accounting and financial concepts essential in understanding and interpreting financial statements and reports. In addition, students will be exposed to financial techniques such as time value of money and capital budgeting.

BA0313 MARKETING INTELLIGENCE Provides students with a working knowledge of the research techniques used in marketing intelligence and research. Topics dealt with include research designs, sampling techniques, data collection methods, fieldwork procedures, data analysis and preparation of research reports.

BA0316 EMOTIONAL INTELLIGENCE This module is designed to introduce and evaluate the competencies of emotional intelligence. Students will be able to describe the difference between intellectual and emotional intelligence. This module will study the different emotional intelligence competencies framework that covers Know Yourself, Choose Yourself and Give Yourself. Students will discover their own self-awareness and techniques through the SE Assessment (Six Seconds Emotional Intelligence Assessment). Its primary goal is to help students become familiar with the many theories of emotional intelligence, building better self-awareness, management and direction through the practice of emotional intelligence elements and practising the infusion in the real world.

BA0318 FINANCIAL AND MANAGEMENT ACCOUNTING Provides students with an understanding of financial accounting concepts and the role of leadership in sustaining organisation change.
This module provides students with hands-on, practical and intensive learning opportunities. Students create business of economic and/or social value by developing core capabilities of idea generation, market research, resource acquisition and entrepreneurial management. Entrepreneurship students will work in teams and adopt agency-style of handling their industry client. They will apply marketing concepts learnt and problem-solving skills accumulated and developed from all other modules to help solve their client’s marketing problem. The project strives for a holistic integration of all students’ skills and understanding before they progress to internship/graduate.

This module focuses on idea generation and the use of design thinking to identify new opportunities. Students will be introduced to a range of design thinking tools that will help them to innovate and experiment in a collaborative and entrepreneurial setting. Students will also be equipped with facilitation skills to engage users at various levels in order to observe and identify potential problems. At the end of the module, students will be able to present a proposal from conceptualisation to ideation and prototyping by applying the design thinking methodology.

This module introduces students to the basics of costing and variance analysis, including marginal and absorption costing, issues of transfer pricing between related companies will be covered. Students will learn the basic concepts of company law, insolvency law and also explore the impact of law on the accounting profession.

This module equips students with an understanding of the importance of understanding customer needs through service innovation. It will provide them with tools and techniques to approach and develop innovative services and concepts that will enhance and reinforce the customer’s journey meaningfully.

BA0368 INVESTMENT ANALYSIS

Aims to introduce the essential skills of personal brand identity that will aid him or her to project and establish an image appropriate for the profession.

Aims to equip students with skills in developing a personal branding to project an image that is distinct and memorable that would help them in their career and personal life.

This module discusses the concept of entrepreneurship and the characteristics of small enterprises. Students will also learn the business strategies used by small enterprises to create a sustainable competitive advantage in the dynamic business environment.

BA0371 MARKETING MANAGEMENT

Emphasises two key areas: integration and application of marketing concepts learnt from the course and other specialised marketing modules to a client-based project. Topics include situation analyses, marketing objectives and strategies, and implementation and control of marketing activities.

This module aims to introduce the students to tools and techniques to perform profitability analysis of capital investment and introduces Bloomberg analytics as a tool to perform portfolio research and analysis.

BA0369 PROFESSIONAL PREPARATION

BA0370 ENTREPRENEURSHIP AND SMALL BUSINESS

BA0372 FUNDAMENTALS OF ECONOMICS

Provides students with an overview of concepts and issues in both micro and macro-economics. Topics include scarcity and choice, demand and supply, cost and revenue, business cycles and economic indicators, fiscal and monetary policies, and international trade and finance.

BA0374 INTEGRATED DIGITAL MARKETING

Aims to provide students with an understanding of the integrated role digital marketing has within a marketing mix strategy & communications framework. Students will be taught core topics & principles in digital marketing and marketing communications with an emphasis on emerging tools such as content marketing, user journey mapping, online public relations & digital campaign reporting to enhance customer lifecycles within a full marketing communications strategy.

BA0381 BUSINESS INNOVATION & PROCESS

This module focuses on the concept of entrepreneurship and the use of design thinking to identify new opportunities. Students will be introduced to a range of design thinking tools that will help them to innovate and experiment in a collaborative and entrepreneurial setting. Students will also be equipped with facilitation skills to engage users at various levels in order to observe and identify potential problems. At the end of the module, students will be able to present a proposal from conceptualization to ideation and prototyping by applying the design thinking methodology.
BA0721 ENTERPRISE MODELS
Introduces participants to the three business models for entrepreneurs - retail, franchising and licensing, and online businesses. Since retail is an important sector in Singapore's service industry, any aspiring entrepreneur should have knowledge of opportunities in retail. Participants will also be introduced to opportunities in franchising and licensing and online businesses.

BA0722 ENTREPRENEURIAL FINANCE FOR DECISION-MAKING
Examines the elements of entrepreneurial finance focusing on essentials of financial management related to start-up ventures and early stages of company development. Tutorials will address key questions which challenge all entrepreneurs: start-up costs, sources of funds and eligibility, government funding. Participants will be able to make financial decisions that will ensure long-term profitability.

BA0723 BUILDING THE ENTREPRENEURIAL ORGANISATION
Teaches students about starting, managing and building the entrepreneurial organisation in a world of rapid technological development and economic uncertainty. The use of diagnostics, case studies, discussion topics and assignments cover critical themes that include character traits of successful entrepreneurs, leadership, relationships, networks, entrepreneurial leadership, innovation, culture, creativity, and building organisational and strategic capabilities in the context of a new, small firm.

BA0724 ENTREPRENEURIAL MARKETING
Focuses on what entrepreneurs need to know about marketing. It is exciting, intensive and covers topics on customers’ needs and value creation, marketing research, marketing strategies and sales; negotiation, building strong brands, business-to-business as well as business-to-consumer marketing. The hands-on approach to this module will help participants connect an entrepreneur’s business idea to the marketing process required to capture customers and attain desirable sales performance.

BA0725 BUSINESS PLAN PROJECT
Requires participants to write a business proposal. They will identify and quantify market opportunities and plan to start a new enterprise. Topics include opportunity assessment through an environmental analysis, marketing propositions, resource management and a financial feasibility study. This module is intended for those who want to start their own business or further develop an existing business.

BA0731 AUDIT AND ASSURANCE
Introduces students to the concepts, processes and need for assurance and internal controls in companies. It allows students to gain knowledge on how to gather evidence for audit engagements and also explores the ethics behind the accounting profession.

BA0732 PRINCIPLES OF TAXATION
Provides students with an understanding of the objectives, type of tax and tax administration. It explores areas of personal income tax, corporate tax as well as goods and services tax.

BA0733 COSTING AND COMPANY LAW
Introduces students to the basics of costing and variance analysis, including marginal and absorption costing, issues in transfer pricing between related companies will be covered. Students will learn the basic concepts of company law, insolvency law and also explore the impact of law on the accounting profession.

BA0801 STATISTICS
Provides students with an understanding of basic statistics concepts and their relevance to the business environment. Topics covered include descriptive statistics, probability distributions, sampling estimations, hypothesis testing, chi-square analysis of variance, linear regression and correlation, and index numbers. Statistical software and computer-based learning (CBL) packages are also introduced.

BA0804 BUSINESS PERFORMANCE MANAGEMENT
Provides students with an understanding of the importance of performance management in an organisation. Topics include performance measurement, sales forecasting, cost reduction, change implementation, and employee performance. Methods for assessing and managing performance will be covered. Students will develop skills in conducting performance reviews and handling difficult situations in performance management. Elements of Emotional Intelligence (EI) are also infused into the module to enhance the EQ of the students.

BA0806 HR INFORMATION SYSTEM
Introduces students to the impact of technology disruption in HR and how HR can leverage on technology to deliver HR-related services. Students will also learn the importance of using a HR Information System (HRIS) to manage employee information and understand how an effective HRIS can meet the informational needs of the organisation. Practical, hands-on sessions using a HRIS will enable students to apply the knowledge in the workplace.

BA0808 GLOBAL HRM (HUMAN RESOURCE MANAGEMENT)
Provides the foundational building blocks for students to relate the impact of internationalisation of organisations to their HRM practices, in particular, the increasing challenges and choices available within international HRM. Global HRM is characterised by HRM practices that cut across cultures and national boundaries. Elements of Emotional Intelligence (EI) are also infused into the module to enhance the EQ of the students.

BA0810 PSYCHOLOGY IN WORK BEHAVIOUR
Introduces students to work psychology in an organisation. Areas covered include the impact of work motivation and satisfaction, learning styles and vocational choices of employees. This enables students to act as facilitators in employee development. Elements of Emotional Intelligence (EI) are also infused into the module to enhance the EQ of the students.

BA0813 EMPLOYMENT LAW
Provides students with an understanding and appreciation of Singapore's employment law which include the Employment Act, Occupational Safety and Health Act, Trade Unions Act, Trade Disputes Act, Work Injury Compensation Act, and the Retirement and Re-employment Act.

BA0815 NEGOTIATION AND CONFLICT MANAGEMENT
Aims to expose students to the influence of social psychology on organisation negotiations and conflict management. Conflict management styles would be identified and negotiation skills are applied to effect a cooperative, win-win negotiation by applying psychological and sociological theories to practical situations. Elements of Emotional Intelligence (EI) are also infused into the module to enhance the EQ of the students.

BA0819 LEARNING AND TALENT DEVELOPMENT
This module provides students with knowledge of the emerging trends that are impacting learning and talent development. Students will use the Design Thinking methodology in identifying, conceptualising, co-creating, implementing and evaluating various learning and talent development initiatives. Apart from theoretical concepts, students will have the opportunity to apply their learning through case studies, group discussions and role-playing a facilitator. They will also gain industry perspectives from guest speakers in the learning and talent development space.

BA0820 TOTAL REWARDS MANAGEMENT
Introduces students to the importance of using total rewards to attract, retain and motivate employees in an organisation. Topics such as employee engagement, health and wellness, communication, grievance and discipline handling, tripartite system and negotiation process will be covered. Students will also learn local practices of pay administration and wage systems.

BA0821 TALENT SOURCING AND ACQUISITION
Provides students with an understanding of the importance of talent sourcing and acquisition of staff in an organisation. Sourcing methods, digital recruitment tools, as well as selection techniques to assess the knowledge and skills and competencies will be covered. Simulation exercises will be used to develop the class in the opportunity and preparation to be an effective HR professional. Elements of Emotional Intelligence (EI) are also infused into the module to enhance the EQ of the students.

BA0822 INTEGRATED HR PROJECT
This is a capstone module for all Year 3 students. In this module, the students will have the opportunity to work on a real client project. They will deploy the Design Thinking methodology to help create and facilitate innovative yet sustainable interventions to address workplace challenges. This will empower students to develop one of key emerging HR skills of innovation as they focus on the end users experience during the solutioning phase.

BA0824 HR ANALYTICS
This module provides students with a working knowledge of the key HR Analytics principles that will allow them to apply the right concepts and principles to their respective work environments. Students will go through a series of analytics exercises from problem definition to data collection and preparation, to data analyses and storytelling, where they will learn and practice the tools and techniques to turn data into useful insights for decision making. They will also learn about specific HR functional analytics, such as talent acquisition, learning and development, compensation and benefits, and employee engagement.

BA0825 EMPLOYEE ENGAGEMENT & RELATIONS
Provides students with an understanding of the importance of employee engagement and relations in an organisation. Topics such as employee engagement, health and wellness, communication, grievance and discipline handling, tripartite system and negotiation process will be covered. Students will also learn to use a digital employee engagement tool. Elements of Emotional Intelligence (EI) are also infused into the module to enhance the EQ of the students.

BA0826 INTERNATIONAL BUSINESS
Introduces students to the global business environment. It covers the role of multinational enterprises in world trade and the politics of global welfare (e.g. the environment, resource scarcity, north-south relations, poverty, disease, hunger, and human rights).

BA0902 TALENT SOURCING AND ACQUISITION
Provides students with an understanding of the importance of talent sourcing and acquisition of staff in an organisation. Sourcing methods, digital recruitment tools, as well as selection techniques to assess the knowledge and skills and competencies will be covered. Simulation exercises will be used to develop the class in the opportunity and preparation to be an effective HR professional. Elements of Emotional Intelligence (EI) are also infused into the module to enhance the EQ of the students.

BA0905 GLOBAL SUPPLY CHAIN MANAGEMENT
Provide students with the basic concepts and global perspective of supply chain management (SCM) and its relation to international business strategy. It covers end-to-end global supply chains and processes, particularly in supply chain strategies, sourcing, inventory management, distribution, transportation, reverse logistics and supply chain outsourcing. In addition, the impact and role of information technology will also be discussed. With its international focus, this module will enhance the students’ global understanding necessary to address the challenges of our dynamic and interdependent world.

BA0906 INTERNATIONAL RELATIONS
Introduces students to the international financial markets and the necessary concepts and skills in global financial management. Students will learn about foreign financial management and approaches in international financing. Transfer pricing issues, financial exposure, risk management and derivatives and strategies.
**BA2105 ENTERPRISE INFORMATION SYSTEM**

Introduces the theory and practice of systems analysis and design, requirements analysis and logical design, phases of a systems project life cycle. It will enable the students to understand the problem requirements, analysis and design of the information system from the requirement specifications, using appropriate methods, tools and techniques. Students will have the opportunity to apply their learning through the Microsoft Dynamics Practicum platform.

**BA2200 CUSTOMER SERVICE EXPERIENCE**

Aims to equip students with sales and relationship skills necessary in wealth advisory and management. Topics will cover the client marketing process from a non-technical angle. These include the phase on wealth customer acquisition, wealth after-sales service and relationship deepening. Design Thinking tools will be infused into the module to create customer-centric solutions.

**BA2201 EQUITY AND FIXED INCOME ANALYSIS**

Provides a working knowledge of the equity and bond markets and the key players. Major equity topics include dealing mechanics, fundamental analysis and company valuation models. The module also examines the investment characteristics of fixed income securities. Basic bond portfolio strategies will be taught as a basis for understanding basic and basic bond portfolio strategies.

**BA2202 FINANCIAL REGULATIONS AND COMPLIANCE**

The module aims to familiarise students with the stockbroking industry and regulatory framework relating to securities trading. Students will learn the rules and regulations governing securities trading, public listing, stockbroking operations, dealing ethics, money laundering, corporate governance and corporate disclosure.

**BA2203 TREASURY AND DERIVATIVES**

Provides an overview of the foreign exchange market, foreign money market, and other financial markets. Students will be introduced to the mechanisms of trading in the various instruments in these markets and will undertake exercises in trading and investment. The module will also discuss the nature of futures markets, behaviour of futures prices and the mechanics of futures trading. Financial futures and options will be introduced as trading and hedging strategies. Students will have exposure to simulated foreign and derivatives trading.

**BA2204 INVESTMENT**

Focuses on basic tenets in financial portfolio performance. Students will learn to apply and integrate knowledge and skills in analysing portfolio theories and evaluating portfolio performance.

**BA2205 EQUITABLE AND FIXED INCOME ANALYSIS**

Provides a working knowledge of the equity and bond markets and the key players. Major equity topics include dealing mechanics, fundamental analysis and company valuation models. The module also examines the investment characteristics of fixed income securities. Basic bond portfolio strategies will be taught as a basis for understanding basic and basic bond portfolio strategies.

**BA2206 CREDIT RISK ANALYSIS AND COMPLIANCE**

Covers the foreign exchange market which includes spot, forwards and swaps, the mechanics of dealing, and the factors influencing exchange rates. The money market will also be covered. Students will be exposed to simulated trading exercises to equip them with the practical skills of dealing.

**BA2207 RELATIONSHIP SKILLS**

Aims to equip students with the sales and relationship skills necessary in wealth advisory and management. Topics will cover the client marketing process from a non-technical angle. These include the phase on wealth customer acquisition, wealth after-sales service and relationship deepening. Design Thinking tools will be infused into the module to create customer-centric solutions.

**BA2208 CUSTOMER SERVICE EXPERIENCE**

Aims to equip students with sales and relationship skills necessary in wealth advisory and management. Topics will cover the client marketing process from a non-technical angle. These include the phase on wealth customer acquisition, wealth after-sales service and relationship deepening. Design Thinking tools will be infused into the module to create customer-centric solutions.

**BA2209 CREDIT RISK ANALYSIS AND MANAGEMENT**

Introduces the basic concepts of credit functions in a bank. This is taught in the context of the role of credit in the financial system and the role of credit in the financial system. Students will learn the functions of consumer and corporate credit facilities, as well as credit rating, the credit administration function in a bank and profit and loss.
BA2107 BUSINESS ANALYTICS
This module aims to introduce the basic business analytics skills to students, allowing them to gain business insights through raw data and apply this skillset across different industries. Students will have an overview of the basic analytics success pillars framework. They will be using Excel to identify patterns and trends, using Dashboards for analysis and presentation, and applying Linear Regression to raw data to establish relationships.

BA2108 DATABASE MANAGEMENT
Aims to provide a thorough view of database knowledge which includes characteristics of a relational model, functions of relational database management systems (RDBMS), process of normalisation, entity relationship modelling, database system cycle development, as well as principles of Structured Query Language (SQL).

BA2153 FINANCIAL MARKETS PRODUCTS
Introduces students to a wide array of financial instruments that are available in the financial markets. It covers fixed incomes instruments, securities, foreign exchange and derivatives products.

BA2203 PRINCIPLES OF NEW MEDIA MARKETING
This module aims to identify the important new media trends and to allow students to understand how companies are responding to the rapidly evolving digital world of user-generated contents, consumer communities and other new forms of communications such as social networking and tagging.

BA2209 INFOCOM SECURITY
Provides students with an understanding of information security and privacy issues. Students will be able to identify the risks, threats and vulnerabilities of the Internet and how to defend against security breaches by identifying effective countermeasures to be taken against identified vulnerabilities. Students will also learn about ethical and responsibility issues through case studies of security breaches.

BA2211 BUSINESS STRATEGIC ANALYTICS
Provides students with an understanding of basic statistical concepts and their relevance to business management. Topics covered include descriptive statistics, simple probability, normal distribution, sampling estimation, hypothesis testing, and linear regression and correlation.

BA2212 BUSINESS STATISTICS
Provides students with an understanding of basic statistical concepts and their relevance to business management. Topics covered include descriptive statistics, simple probability, normal distribution, sampling estimation, hypothesis testing, and linear regression and correlation.

BA2213 BANKING OPERATIONAL RISK MANAGEMENT
Introduces students to the operational risks faced by a financial institution. Understand the key principles of an operational risk framework, key risk indicators, risk culture and appetite, the application of operational risk tools, data challenges and guidelines on regulatory reporting.

BA2214 INVESTMENT OPERATIONS
Introduces to students how foreign exchange, derivatives and securities are traded internationally. Students will be skilled in the processing of these trades from their inception to their final settlement. The monitoring and mitigation of credit and settlement risks will also be introduced.

BA2215 PREDICTIVE ANALYTICS I
This module aims to provide advanced business analytics concepts and techniques to perform data analysis for predicting outcomes based on past data. Students will use McDonalds Visual Basic Applications to create predictive models and understand the assumptions underlying the predictive models. Students will also be taught data visualisation and apply them to create real-world solutions.

BA2216 PREDICTIVE ANALYTICS II
This module aims to provide students with hands on practice of up to date Analytics programs that are being used by the industry and higher institution of studies. Students will be creating models and identifying trends and patterns to form analysis strategies based on real-world problems. Students will be exposed mainly to R programming and Tableau.

BA2217 ESSENTIAL PROGRAMMING (PYTHON)
Starting with the basics of Python, students would progress to concepts like data manipulation. Additional focus will be placed on python libraries that enable data analytics. Students will also complete on an analytics project which they will work with MS Visio.

BA2218 MOBILE MARKETING
Provides students with an overview of Mobile Marketing in the business world and to expose them to the business models, opportunities, issues and technology that are involved in the mobile marketing industry. The module will also familiarise students with tools for developing mobile applications.

BA2219 BUSINESS MODEL DESIGN AND STRATEGY
Understanding the functional areas of a business and their relationships with one another while learning to use Business Strategy Tools such as Business Model Canvas, Value Proposition Canvas and Roger Martin’s ‘Playing to Win’ strategy.

BA2220 ENTREPRENEURSHIP
Introduces students to the process of starting a business idea and gives them an understanding of the process. Students are required to apply the knowledge learnt through their business projects.

BA2221 ENTREPRENEURSHIP
Introduces students to how to start a business ideas generation and gives them a basic understanding of marketing and business fundamentals. Students are expected to integrate the knowledge learnt through their business projects.

BA2222 BUSINESS ANALYTICS
This module aims to provide students with hands on practice of up to date Analytics programs that are being used by the industry and higher institution of studies. Students will be creating models and identifying trends and patterns to form analysis strategies based on real-world problems. Students will be exposed mainly to R programming and Tableau.

BA2223 BUSINESS STRATEGIC ANALYTICS
Provides students with an understanding of basic statistical concepts and their relevance to business management. Topics covered include descriptive statistics, simple probability, normal distribution, sampling estimation, hypothesis testing, and linear regression and correlation.

BA2224 BUSINESS STRATEGIC ANALYTICS
Provides students with an understanding of basic statistical concepts and their relevance to business management. Topics covered include descriptive statistics, simple probability, normal distribution, sampling estimation, hypothesis testing, and linear regression and correlation.

BA2225 BANKING OPERATIONAL RISK MANAGEMENT
Introduces students to the operational risks faced by a financial institution. Understand the key principles of an operational risk framework, key risk indicators, risk culture and appetite, the application of operational risk tools, data challenges and guidelines on regulatory reporting.

BA2226 INVESTMENT OPERATIONS
Introduces to students how foreign exchange, derivatives and securities are traded internationally. Students will be skilled in the processing of these trades from their inception to their final settlement. The monitoring and mitigation of credit and settlement risks will also be introduced.

BA2227 FINAL YEAR PROJECT
Provides students with an opportunity to integrate technical skills and business knowledge they have acquired from the course and experience problem solving, communicating and working as a team to develop a business proposal and solution for real clients. Basic principles of managing an analytics or IT project will also be taught. It will cover the planning, scheduling and development budget of the work, monitoring and control of projects from the perspective of project managers.

BA2228 ESSENTIAL PROGRAMMING (PYTHON)
Starting with the basics of Python, students would progress to concepts like data manipulation. Additional focus will be placed on python libraries that enable data analytics. Students will also complete on an analytics project which they will work with MS Visio.

BA2229 MOBILE MARKETING
Provides students with an overview of Mobile Marketing in the business world and to expose them to the business models, opportunities, issues and technology that are involved in the mobile marketing industry. The module will also familiarise students with tools for developing mobile applications.

BA2230 BUSINESS MODEL DESIGN AND STRATEGY
Understanding the functional areas of a business and their relationships with one another while learning to use Business Strategy Tools such as Business Model Canvas, Value Proposition Canvas and Roger Martin’s ‘Playing to Win’ strategy.

BA2231 ENTREPRENEURSHIP
Introduces students to the process of starting a business idea and gives them an understanding of the process. Students are required to apply the knowledge learnt through their business projects.

BA2232 ENTREPRENEURSHIP
Introduces students to the process of starting a business idea and gives them an understanding of the process. Students are required to apply the knowledge learnt through their business projects.

BA2233 ENTREPRENEURSHIP
Introduces students to the process of starting a business idea and gives them an understanding of the process. Students are required to apply the knowledge learnt through their business projects.

BA2234 ENTREPRENEURSHIP
Introduces students to the process of starting a business idea and gives them an understanding of the process. Students are required to apply the knowledge learnt through their business projects.

BA2235 ENTREPRENEURSHIP
Introduces students to the process of starting a business idea and gives them an understanding of the process. Students are required to apply the knowledge learnt through their business projects.

BA2236 ENTREPRENEURSHIP
Introduces students to the process of starting a business idea and gives them an understanding of the process. Students are required to apply the knowledge learnt through their business projects.

BA2237 ENTREPRENEURSHIP
Introduces students to the process of starting a business idea and gives them an understanding of the process. Students are required to apply the knowledge learnt through their business projects.
Synopses

BA5121 GLOBAL MARKETING STRATEGY
Equips students with the knowledge of developing marketing strategies for international markets, and highlights the impact of international competitors in the domestic market. Topics include decision making, planning and implementation of international marketing programmes and understanding of the specific foreign countries that will also be covered.

BA5123 BUYER BEHAVIOUR
Covers essential concepts of buying processes of individual consumers and institutional customers. Students will develop an understanding of consumer behaviour and its relationship to purchase decisions. Topics include consumers' decision-making, purchase processes, and the factors which influence consumer behaviour. On institutional customers, areas covered are purchasing behaviour and industrial procurement and buyer-seller relationship.

BA5124 MARKETING MANAGEMENT
Gives a broad overview of the marketing functions, marketing planning, and nonmarketing personnel with a better perspective of the marketing function and the marketing management process. Topics covered include marketing fundamentals, market opportunity analysis, market segmentation and targeting, the elements of the marketing mix and marketing management in a contemporary context.

BA5130 SOCIAL MEDIA MARKETING
Exposes students through hands-on application of social media marketing programmes, to the use of user-generated content, consumer communities and other emerging forms of non-traditional communication channels for marketing campaign development. Students in the social media landscape will be explored to ensure students gain a greater understanding of social networking and other emerging media tools for effective marketing.

BA5142 SELLING AND SALES MANAGEMENT
Introduces students to the principles of successful selling and effective sales management. Various methods of selling approach, presentation and closing techniques will be taught. Other topics include designing the sales organisation, sales forecasting, budgeting, management of sales territory, sales force compensation and appraisal systems.

BA5122 MARKETING COMMUNICATIONS STRATEGY
Builds a sound theoretical and practical understanding of the formulation of promotional strategy and the management of the integrated marketing communication process. Strategic issues relating to advertising, public relations, personal selling and sales promotion will be covered.

BA5204 SUPPLY CHAIN MANAGEMENT
Introduces students to the contemporary concepts, principles and business practices in supply chain management. It will cover the principles underlying key supply chain processes, including distribution, sourcing, transportation, demand management, reverse logistics and outsourcing. The importance of using information technology to integrate and share information with internal and external parties across the supply chain will also be discussed.

BA5101 INTRODUCTION TO ACCOUNTING
Provides students with an understanding of the basic concepts and principles of accounting. Significant areas covered are double entry concept, the accounting process, financial statements of trading firms, basic costing concepts, cash flow statement and appreciation, cost volume profit analysis and budgeting.

BA5113 ECONOMIC ANALYSIS
Provides students with a deeper knowledge of microeconomic and macroeconomic theories so as to draw relevant applications to workplace economics. Topics covered include game theory, economic growth models, and the impact of monetary and fiscal policies.

BA5123/2 FUNDAMENTALS OF ENTERPRISE DEVELOPMENT
Aims to equip students with fundamental business knowledge and skills. Students will develop the Design Thinking problem-solving and communication skills. Students will use Design Thinking methodology to ideate, conduct user research, develop a prototype and write the marketing plan.

BA5104 BUSINESS MANAGEMENT FOR OPTOMETRY PRACTICE
Introduces students to business planning and retail operations. Students will apply the knowledge in an integrated manner to prepare a business project for an optometry practice. The module also provides an understanding of the legal and professional regulations governing the optometry practice in Singapore.

BA5007 TECHNOPRENEURSHIP
Provides students with the basic concepts of planning for a technology-based venture. It covers business ideas generation, marketing and finance. Students will apply this knowledge in an integrated manner to develop a simple business plan.

BA5109 INTRODUCTION TO BUSINESS MANAGEMENT
Aims to give students some general background and insight into the legal, financial and human aspects of commercial business. Business operations, partnerships and liability companies will be considered. Students will then learn about main financial documents, business indicators and sources of finance. Concepts of human aspects of industry will be presented with organisational structures and employment laws.

BA5103 PERSONAL SELLING
Provides students with a practical knowledge of the art and science of effective personal selling. It encompasses the learning of the comprehensive process of personal selling to consumers and businesses and putting into practice under realistic scenarios and assessments.

BA5127 ECONOMIC ANALYSIS
Provides students with an understanding of the basic principles and techniques of economic analysis and the importance of relationship selling. Apart from theoretical concepts, students will have the opportunity to apply the sales techniques in selling to a B2B market.

BE1111 ARCHITECTURAL DESIGN TECHNIQUES 1
Facilitates the development of critical design thinking, visualization and documentation skills. Students are introduced to sketching, visual presentation and orthographic techniques and model-making in a design studio-based learning environment. They also learn to formulate architectural design ideas and development of architectural drawings and presentation through the use of architectural symbols, drawing conventions, line colour and layering systems. They are also exposed to digital technologies to develop skills in visual composition. For their project, students have to apply their knowledge and skills to render, document and present their design.

BE1115 ARCHITECTURAL VISUAL COMMUNICATIONS
Provides students with the knowledge and skills to use 2D and 3D (modelling) software for architectural documentation and presentation. Students are introduced to AutoCAD standards, rendering, architectural symbols, layering, and visual composition. Students will also learn the fundamentals of various reinforced concrete structures and architectural elements. Students are required to apply their understanding of these systems in their project.

BE1124 ENVIRONMENTAL SCIENCE II
Reinforces students’ understanding of ecological design concepts with emphasis on building orientation, natural resources and waste management. Students will learn the concepts of recycling/harvesting and waste segregation disposal systems are examined. Students will also learn the local codes and practices for domestic water supply, electrical substation and electrical supply, vertical transportation, drainage, cooling, heating, surface and roof for multiple storeys and their impact and implications on spatial and façade design as well as site planning. Students also learn the fundamentals of public facilities and air-conditioning system used in residential buildings. Students are required to demonstrate their understanding of these systems in their project.

BE1125 ARCHITECTURAL VISUAL COMMUNICATION
Provides students with the fundamental and intermediate knowledge of Building Information Modelling (BIM) software, for architectural documentation and presentation. Students are introduced to Revit standards, including drawing and modelling conventions, families and quantity takeoff. They will continue to develop their tools and skills in document, rendering, visual and graphical composition and presentation.

BE1215 HISTORY & THEORY OF ARCHITECTURE II
Examines the philosophy and evolution of design language and architectural intention from the 17th century to the present in the West and its parallel development in Asia. It provides students with a basic knowledge and understanding of architectural design language and thinking to facilitate their own generation of critical design strategies in their project work. Students are required to express their thought in writing and to articulate their interpretation of their own design ideas in their individual project work.

BE1216 PROJECTED INTEGRATED PROJECT I
Students will apply and integrate knowledge gained in the first year of studies to a low-density architectural project. It develops both design thinking and the dexterity with tools and techniques, with a focus on generating design ideas, translating them into architectural forms, spaces, materials and programs.

BE1217 MATERIALS & ARCHITECTURAL TECHNOLOGY I
Provides students with the fundamental knowledge of building technology and architectural detailing using basic building materials. Students explore and discover the design potential of these materials in response to structural and environmental forces. They learn to appreciate the concepts and behaviour of simple building structures and their components. Students are required to apply their knowledge through the understanding of the basic structural principles and detailing of the architectural elements and finishes of their design project.

BE1218 MATERIALS & ARCHITECTURAL TECHNOLOGY II
Provides students with the fundamental knowledge of building technology and architectural detailing using basic building materials. Students explore and discover the design potential of these materials in response to structural and environmental forces. They learn to appreciate the concepts and behaviour of simple building structures and their components. Students are required to apply their knowledge through the understanding of the basic structural principles and detailing of the architectural elements and finishes of their design project.

BE1211 INTRODUCTION TO BUSINESS MANAGEMENT
Aims to give students some general background and insight into the legal, financial and human aspects of commercial business. Business operations, partnerships and liability companies will be considered. Students will then learn about main financial documents, business indicators and sources of finance. Concepts of human aspects of industry will be presented with organisational structures and employment laws.

BE1213 ENVIRONMENTAL SCIENCE II
Reinforces students’ understanding of ecological design concepts with emphasis on building orientation, natural resources and waste management. Students will learn the concepts of recycling/harvesting and waste segregation disposal systems are examined. Students will also learn the local codes and practices for domestic water supply, electrical substation and electrical supply, vertical transportation, drainage, cooling, heating, surface and roof for multiple storeys and their impact and implications on spatial and façade design as well as site planning. Students also learn the fundamentals of public facilities and air-conditioning system used in residential buildings. Students are required to demonstrate their understanding of these systems in their project.

BE1215 ARCHITECTURAL VISUAL COMMUNICATION
Provides students with the fundamental and intermediate knowledge of Building Information Modelling (BIM) software, for architectural documentation and presentation. Students are introduced to Revit standards, including drawing and modelling conventions, families and quantity takeoff. They will continue to develop their tools and skills in document, rendering, visual and graphical composition and presentation.

BE1216 HISTORY & THEORY OF ARCHITECTURE II
Examines the philosophy and evolution of design language and architectural intention from the 17th century to the present in the West and its parallel development in Asia. It provides students with a basic knowledge and understanding of architectural design language and thinking to facilitate their own generation of critical design strategies in their project work. Students are required to express their thought in writing and to articulate their interpretation of their own ideas in their individual project work.
INTRODUCTION TO PROJECT MANAGEMENT

Provides students with an understanding of the role of project management in the events industry. Students will learn the concepts and process of project management, including initiation, planning, execution, control, and closure. They will have an understanding of the principles and practices of the MICE industry. Topics covered include risk management, contracts, performance, and termination of contracts.
The craft of designing and detailing spatial qualities of the building codes and standards and its interaction with natural materials is critical as finishes will be an integral part of the constructed environment. Students will learn negotiation fundamentals, negotiation process, negotiators’ conduct and sub-processes essential for effective negotiation.

**BEA112 DESIGN THEORY RESEARCH 1**

This module aims to inculcate basic skills of critical analysis, reading, writing and research for first year design students. Using a set of Design Lenses as critical and theoretical building blocks, students will learn to apply theoretical ideas to augment their conceptual ideation, to build design arguments and evaluate design propositions through reflections, presentations and writing, and understand the foundations of design experimentation.

**BEA112 INTERIOR DESIGN STUDIO 1**

Students will be introduced to basic design terminology, skills and conceptualisation methodologies. Students will explore the fundamental relation between the body and space and its direct relation to the scale and size of our constructed environment. Students will also be equipped with basic spatial planning, design development, documentation and communication techniques which are integral to Interior Designing. The module also emphasises consistent craft making and iteration of design ideas in the aims of developing conscious design sensitivity in each of the students.

**BEA112 MATERIALS AND TECHNOLOGY 1**

The fundamentals of frame structure and construction are introduced. The study of natural materials is critical as finishes will be an integral part of the constructed environment. Students will learn negotiation fundamentals, negotiation process, negotiators’ conduct and sub-processes essential for effective negotiation.

**BEA212 DESIGN THEORY RESEARCH 2**

This module aims to develop students’ critical and analytical skills with various design lenses in the research and study of technological, social, political, historical, cultural and economic aspects. This inquiry allows students to comprehend the influences and impacts that these factors can catalyse design propositions. The module also emphasizes consistent craft making and iteration of design ideas in the aims of developing conscious design sensitivity in each of the students.

**BEA212 INTERIOR DESIGN STUDIO 2**

Investigates the issues of spatial experiences and sequences in response to a specific context e.g. for retail and mixed-use spaces. Students are required to understand the ‘Client’ brief and do a contextual mapping and analysis to understand the existing physical constraints (including the building structures as well as socio-cultural and economic patterns). In addition, students also study concepts of branding and marketing, their strategies and understand their effects on design.

**BEA212 MATERIALS AND TECHNOLOGY 2**

Focuses on processed / synthetic materials as finishes for interior surfaces (floor, wall, ceiling and fixtures) as well as furniture and furnishings. Students explore and discover the effect of design poetics of materials in the conditioning of spaces. They also learn construction and detailing techniques towards enhancing consumer experiences in residential and retail spaces.

**BEA212 DESIGN THEORY & RESEARCH 3**

Examines western political ideologies, and the development of Society from the 14th Century right up to contemporary trends and sets up of modern States. Students are also introduced to philosophical ideas related to the relevance of space design and the concept of Control. Students are expected to articulate their various studies in seminars, writings, and graphical presentations, integrated largely with their Final Year Design Project for a more holistic learning approach.

**BEA312 INTERIOR DESIGN STUDIO 3**

Examines the issues and challenges of interior design within the context of civic and cultural environment such as work-spaces, spheres, restaurants, library, galleries etc. This includes urban spaces especially as a response to the demands of an increasingly global and technologically advanced world. Students demonstrate their accumulated knowledge and skills in their final-year projects from conceptualisation to documentation for construction.

**BEA312 MATERIALS AND TECHNOLOGY 3**

This module further develops the knowledge and skills of using materials and detailing techniques in interior design to respond to the complexities of architectural designs and technologies. At the same time, students are also exposed to the importance of environment management and sustainability and they learn to refine their design and detailing skills. The advancement in lighting technology is studied and students learn their important effects on interior design. The relevant building codes and standards are also introduced when students are applying their knowledge in their design project.

**BEA312 INTERIOR DESIGN PRACTICE – ADVANCED**

This module provides a practice-oriented interior design training that develops students with the relevant discipline, practical skills and knowledge to apply into their working life as a designer. Pre-contract administration procedures are introduced to students for the understanding of the planning and management of projects and expectations in an interior design office. Students are exposed to Codes of practices, professional practices in the interior design industry. A portion of the module also focuses on the students’ own personal development as a designer.

**BEA312 ENVIRONMENTAL SYSTEMS & PROCESSES**

Introduces students to the role of environmental processes in shaping the patterns of the physical environment and the operation of global environmental systems. There will be fundamental knowledge on the need for sustainable interactions of humans with their environment and for control of environmental crisis such as global warming and depletion of natural resources.

**BEA312 LANDSCAPE DESIGN STUDIO II**

Facilitates students to explore and discover appropriate solutions for local context and design strategies for sustainable development. The module further develops skills in the integration of natural with built forms in the creation of an urban landscape. It is a holistic approach to create a relationship for sustainable development.

**BEA320 COMPUTER-AIDED DESIGN & PRESENTATION**

Provides students with the knowledge to use software and digital techniques for design, presentation and documentation of landscape design. This is complementary to study models and other media of communications.

**BEA320 LANDSCAPE DESIGN STUDIO III**

Enables students to develop skills in the design process of urban open space planning and landscape design with considerations to local authority’s policies and design guidelines. It involves further development of critical thinking and problem-solving skills to strategies and make decisions. It facilitates students developing skills in the integration of natural with built forms in the creation of an urban landscape. It is a holistic approach to create a relationship for sustainable development.
Synopses

BE5000 PLANTS & SITE PLANNING
Develops in students the knowledge of site inventory and their impact to site planning and design of an urban site. It also develops students’ knowledge in plant selection and planting design for public spaces and their aspects of urban biodiversity and management.

BE5301 URBAN ENVIRONMENT & SOCIETY
Examines the social and economic sustainability issues and techniques for good urban spaces and landscapes design with emphasis to local context. The political and economic landscapes are studied to understand the impact and implications on the lifestyles and well-being of the people in Singapore.

BE5304 PROJECT MANAGEMENT IN LANDSCAPE ARCHITECTURE II
Introduces the documentation and preparation for a landscaping project including cost estimation, specifications and contracts administration. It also emphasises on developing effective portfolio at diverse scales in landscape design and related field.

BE6701 FUNDAMENTALS OF FACILITIES MANAGEMENT
Provides students with an understanding of the operation of the diverse and dynamic facilities management industry. It covers the scope of work performed by facilities manager’s purview job role of the facilities manager in different types of assets, namely commercial (retail, offices), industrial, business parks, infrastructural (airports, trains, cruise liners), institutional (teaching institutions, hospitals, leisure facilities such as external works, jacuzzi, saunas, steam rooms, games rooms, tennis and squash courts, business centre, playgrounds and landscaping gardens).

BE6704 PRINCIPLES OF MANAGEMENT
Provides students with an understanding of the principles of management. Students will be introduced to the process of management, decision-making, organisational behaviour and culture, organisational structure and design, leadership and motivation theories, group dynamics, communication and interpersonal skills.

BE6709 LEISURE AMENITIES MANAGEMENT
Gives students an understanding of leisure facilities and other amenities and their maintenance and management. It covers leisure facilities such as external works, clubhouse, gym, swimming pools, spas, jacuzzi, saunas, steam rooms, games rooms, tennis and squash courts, business centre, playgrounds and landscaping gardens.

BE6710 FUNDAMENTALS OF EVENT MANAGEMENT
Provides students with foundational understanding of event planning and management. The module will introduce students to elements in event conceptualisation and creation, market research, event and public policy, event proposals and bids, food & beverage and event technology. Students will also be given a heads up on trends impacting the events industry.

BE6712 DRAWING & VISUALISATION
Equips students with the skills in the interpretation of technical drawings and drafting of details related to events and/or facilities management. Students will learn the fundamentals of manual drafting and computer assisted drafting.

BE6717 ELECTRICAL & PLUMBING SERVICES
Equips students with the knowledge of electrical engineering and plumbing services including electrical distribution, lighting, water supply, sanitary and drainage systems.

BE6718 ACCOUNTS & FINANCE
Gives students an understanding of the basic concepts and principles of accounting. Types of business organisations, preparation and interpretation of balance sheet and profit and loss statement, basic financial ratio analysis, sources of finance, cash flow analysis, and budget and variance will also be taught.

BE6803 ENVIRONMENTAL MANAGEMENT & SUSTAINABILITY
Describes sustainability and its role in the overall business strategy of an organisation. This module covers utilities management, energy savings initiatives and techniques, building automation, developing sustainable buildings, green building technologies, waste control and reduction.

BE6804 FACILITIES OPERATIONS & COMMUNICATIONS
Gives students an understanding of the importance of property & facilities maintenance management in the overall success of an organisation and its business. The various aspects of property & facilities management maintenance including planning, organisation and execution of maintenance work, keeping records and documentation, life cycle costing, estimating and budgeting, tenancy management, project and improvement work, maintenance and operation, etc. and legislations governing maintenance of properties in Singapore will be covered. Provides students with an understanding of how to write proper agendas, minutes of meetings, circulars and technical reports in facilities management.

BE6806 TOWN COUNCIL & STRATA MANAGEMENT
Gives students an understanding of the applicable legislations governing the maintenance and management of public housing estates in Town Council and private strata titled properties consisting of residential, office, retail, industrial and mixed development.

BE6808 CUSTOMER RELATIONSHIP MANAGEMENT
Equips students with the knowledge and skills in engaging affectively with customers and stakeholders. It covers the four components of Customer Relationship Management namely information, process, technology and people as well as key elements for successful service delivery.

BE6810 FIRE SAFETY MANAGEMENT
Prepares students for the duties of a Fire Safety Manager. It covers the similar contents of the Fire Safety Manager Course offered by the SCDF. The principles of fire and safety design and management will be covered.

BE6811 MECHANICAL SERVICES
Equips students with the knowledge of mechanical engineering systems including ventilation, air conditioning, lifts & escalators, gas installation, refuse disposal and telecommunication.

BE6813 SAFETY, HEALTH & SECURITY
Gives students an understanding of the importance of property & facilities maintenance management in the overall success of an organisation and its business. The various aspects of property & facilities management maintenance including planning, organisation and execution of maintenance work, keeping records and documentation, life cycle costing, estimating and budgeting, tenancy management, project and improvement work, maintenance and operation, etc. and legislations governing maintenance of properties in Singapore will be covered. Provides students with an understanding of how to write proper agendas, minutes of meetings, circulars and technical reports in facilities management.

BE6815 HOSPITALITY SERVICES FOR FM
Provides an overview of soft services in facilities management for a more productive and hospitable environment across commercial, industrial, business parks, infrastructural, institutional, recreational and residential facilities. Gives students an understanding of front office services, housekeeping services, catering and food and beverage operations. An appreciation of the IT applications used for operations such as room reservation, room management, housekeeping, front desk, accounting and reporting will also be covered.

BE6816 BUILDING DIAGNOSIS
Equips students with the understanding of the factors leading to building deterioration and defects. It also enables students to identify common building defects, diagnose their cases and understand their respective preventive and remedial measures.

BE6817 TOWN COUNCIL & STRATA MANAGEMENT
Gives students an understanding of the applicable legislations governing the maintenance and management of public housing estates in Town Council and private strata titled properties consisting of residential, office, retail, industrial and mixed development.

BE6818 ANALYTICS & INFO MANAGEMENT
Equips students with skillsets in using computer applications for storing, organizing and manipulating data to support data analysis for business applications and for facilities management/ project planning and scheduling.

BE6901 CROSS CULTURAL STUDIES
Gives students an understanding of the globalisation of business and the impact of culture on operating and managing business in a multicultural market and workplace. Students will be given an appreciation of culture generally and an understanding of cultural differences among people, methods of dealing with the differences and cross-cultural communication in the business environment.

BE6902 INTEGRATED PROJECT
Aims to develop initiative, self-reliance and organisational abilities by making students work independently in an authentic work situation. It consists of an in-depth study of real issues or topics related to actual practice in property & facilities management. It draws upon the various aspects of the course content and may require thorough literature research and fieldwork, and writing a report, model making or video production or writing an application software. An element of creativity, innovation and enterprise (CIE) is also required. Students will be working in groups and guided by a project supervisor.

BE6904 PROCUREMENT & PROJECT MANAGEMENT
Equips students with the knowledge and skills in using facilities management software to support space, maintenance and services management.

BE6905 BUILDING INFORMATION TECHNOLOGY
Provides students with an overview of the overall BIM process. Gives students the insight and ability to use Building Information Modelling (BIM) software to plan and manage buildings more efficiently. Equips students with the knowledge and skills in using facilities management software to support space, maintenance and services management.

BE6907 STRATEGIC ASSET ENHANCEMENT
Gives students an understanding of the material and methods employed in sustainable refurbishment, retrofitting and A&A including the associated temporary works like scaffolding, hoardings, temporary support systems, underpinning, etc. It also covers the safety considerations while refurbishment is in progress. Provides an overview and appreciation of the key features of Smart buildings within the context of facilities management. It covers building and facility systems, communications, business systems, technology solutions, such as digitization, remote access, voice activated controls, mobile applications and the Internet of Things that contribute to sustainability and operational efficiency. Understanding of the functioning of these systems and devices, and the ability to capitalise on them as facilities managers will also be covered.
BBE101 GEOMATICS 1 & GIS
Aims to introduce the principles involved in the practice of spatial data acquisition, processing and presentation of these surveyed data digitally. Students will learn the basic concepts of principles of point location strategies and height by levelling, collimation error determination and the establishment of reference marks by traversing. They will also learn the basic functions of ArcGIS software to plot the surveyed data and the conversion of topographic data of the SP campus into a GIS database.

BBE103 ECONOMICS
Gives students an understanding of basic microeconomics and macroeconomics concepts. Topics covered include basic concepts of economics, demand and supply, market equilibrium, elasticity, production and costs, market structure, perfect competition, monopoly, national income and money.

BBE104 STRUCTURAL MECHANICS
Aims to cover the fundamentals of statics and strengths of materials. Students learn to solve problems involving the analysis of statically determinate beams, frame structures and the calculations of stresses and strains. Topics covered include equilibrium of forces, pin-jointed frames, shear forces and bending moments, sectional properties, direct stresses and strains as well as column buckling.

BBE109 HYDROLOGY & HYDRAULICS
Provides the basic knowledge of hydrology, hydrostatics, hydraulics and their applications in practice. Students will learn about properties of fluids and calculate forces exerted on plane surfaces by stationary and moving fluids. They will also learn to calculate flow measurement through pipes and open channels by using the venturimeter, and orifices. Students will also be taught the basic principles of stormwater. Classroom teaching is supplemented with individual assignments, group work and presentations and site visits.

BBE112 INTRODUCTION TO CIVIL ENGINEERING & BUILDING
This module introduces students to civil engineering and building. Students will learn to analyse structures by using the classical methods such as principles of virtual work and moment distribution method. The theoretical analysis is supplemented by computer application of available structural analysis software and laboratory sessions, which are tailored to give a better understanding of the structural theory.

BBE120 SAFETY, HEALTH & ENVIRONMENTAL MANAGEMENT
Provides students with an understanding of the safety, health and environmental hazards inherent in the construction industry and the preventive measures to ensure safe and healthy work environment. It helps students acquire knowledge and supervisory skills for good housekeeping, risk management and maintenance of safe working environment and understand procedures under the Workplace Safety and Health Act and other related legislation. It also introduces environmental control concepts at construction sites such as solid waste management, vector control, food hygiene, water, air and noise pollution control.

BBE121 WATER TECHNOLOGY
Provides students with an overview of water resource and water pollution control practice. Fundamental principle and current engineering practice in water treatment and distribution, wastewater collection and treatment, sludge treatment and disposal, and water reclamation will be taught in the module. Lab works for water and wastewater control will also be conducted. Upon completion of the module, students should be able to have some background knowledge to carry out simple design and operation of water treatment and reclamation system.

BBE122 MECHANICAL & ELECTRICAL ENGINEERING
Aims to give students some general background and insights into buildings construction stages, steps and information flow in Civil Engineering building and structure modelling and to equip students with fundamental CAD and Building Information Modelling (BIM) skills. It attempts to use computer hands-on practical session and project based learning to achieve these goals. Students will learn visualization skill, latest CAD and BIM technologies, and will be facilitating with learning environment that encourages independent learning. Students will apply these knowledge and skills in an integrated manner to develop a virtual construction simulation model of 3D building and civil engineering structures. This module also serves as a foundation for other CAD and BIM application environment in Year 2 and Year 3 of this course.

BBE123 CAD WITH BUILDING INFORMATION MODELLING (BIM)
Provides students with an understanding of the safety, health and environmental hazards inherent in the construction industry and the preventive measures to ensure safe and healthy work environment. It helps students acquire knowledge and supervisory skills for good housekeeping, risk management and maintenance of safe working environment and understand procedures under the Workplace Safety and Health Act and other related legislation. It also introduces environmental control concepts at construction sites such as solid waste management, vector control, food hygiene, water, air and noise pollution control.

BBE124 COMPUTER-AIDED ENGINEERING DESIGN
Provides students with the fundamentals of soil mechanics. Topics include soil classification, ground investigation, basic properties, compaction, permeability, stresses in soil, shear strength and the design of retaining walls and footings to Eurocode 7. Classroom instructions are supplemented by tutorials, laboratory sessions, assignment on slope model testing and e-learning.

BBE125 CONCRETE ENGINEERING & CONSTRUCTION
Provides students with an understanding of reinforced concrete design according to Eurocode 2. It covers the design of basic structural elements of a building such as beams, slabs, columns and footings. The students will learn to use CAD software to detail the reinforcement bars as calculated from their design.

BBE126 STEEL DESIGN & CONSTRUCTION
Covers the basic concepts and principles of structural steel design and the associated ancillary civil engineering works and gives them practice on how to extract relevant information from Architectural Drawings for Structural and Civil Engineering Design. It also aims to expose them to the submission procedures using BIM as required by the relevant authorities.

BBE127 FINANCIAL MANAGEMENT
Covers the performance of civil engineering works such as earthworks, roadworks, bridges, tunnels, dredging and land reclamation. These include most advanced construction with an insight into techniques applied in large-scale development using standard or special equipments and equipment. Also taught is the adoption of game-changing technologies like Prefabricated Pre-finished Volumetric Construction (PPVC) and Cross Laminated Timber (CLT) construction technique. Classroom teaching is supplemented with tutorials, problem-based assignments and presentations.

BBE128 MANUFACTURING & SUPPLY CHAIN MANAGEMENT
Covers various topics ranging from planning to design and construction. Students will learn to analyse traffic demand, acquire and interpret traffic flow data, perform geometric design of highways, and carry out design of flexible pavements. Instruction will take place through a combination of lectures, tutorials and laboratory (practical) sessions.

BBE129 CONSTRUCTION PROJECT MANAGEMENT
Provides students with knowledge on principles of project management and their applications in construction projects. Techniques in managing construction projects will be taught including project planning, project procurement, engineering economics, cash flow analysis, earned value, critical path methods using network diagrams. Students will explore the use of construction software in project management to manage projects.

BBE130 ENVIRONMENTAL MANAGEMENT
Provides students with an overview of environmental management and pollution control. Wastewater analysis will also be conducted. Topics covered include food hygiene, water, air and noise pollution control.

BBE131 ACCOUNTS & FINANCE
Provides students with knowledge of basic accounting principles and financial statement preparation. Students will also be taught to read and interpret financial statements, as well as perform financial analysis for a holistic appreciation of the performance of an organization through a range of in-course activities and a final project.
Synopses

**BE**1322 GREEN BUILDING TECHNOLOGY

Equips students with the knowledge of green building systems, selection of green building materials, economic analysis of green buildings and the various Green Building Technologies to achieve a sustainable built environment. Project work, case studies and site visits to buildings with green mark awards are aimed to enhance students' awareness and understanding of green building concepts taught.

**BE**1323 PRECAST & PRE-STRESSED CONCRETE TECHNOLOGY

Equips students with the understanding of precast and pre-stressed concrete technology, stressed, precast concrete technology. This covers developments and challenges in precasting technology and its practical applications in construction. This would eventually lead to improved productivity in the construction industry. This technology has been identified as one of the key areas of focus that can contribute to faster and less labour intensive construction through the ease of manufacture (off-site) and efficiency of assembly (on-site). This would eventually lead to improved productivity in the construction industry. The next part of the module deals with developments and challenges in pre-stressed precast concrete technology, the design concepts, post-tensioning applications in buildings and pre-stressed precast applications in bridges and viaduct construction.

**CP**0304 LABORATORY MANAGEMENT AND BIOSAFETY

Provides an overview of quality management for the laboratory and biosafety. The practice of safe science in clinical and life science laboratories is also covered.

**CP**0401 SKINCARE RAW MATERIALS AND FORMULATIONS

Provides an understanding of the ingredients used in formulating hair products, their purpose and formulating techniques. Topics for this module cover a detailed study of surfactants, thickeners, actives, preservatives and other ingredients in hair and skincare care from anti-ageing creams to coloured preparations and evaluations will be discussed. The concepts taught.

**CP**0403 DERMAL PHARMACOLOGY AND COSMETIC REGULATIONS

Provides an overview of the physiology and pathology of the skin, hyperactivity and immunological skin reactions, common skin disorders and their treatment. Toxicological and phototoxicity and photoallergenic effects from cosmetic ingredients will be included. Local and international cosmetic regulations, banned substances in cosmetics formulations, labelling and licensing requirements for cosmetic products are covered.

**CP**0404 SKINCARE RAW MATERIALS AND FORMULATIONS

Provides an overview of ingredients used in skincare products. Formulations, preparations and evaluations will be covered across main areas in personal care from anti-ageing creams to coloured lipsticks and sunscreens. Different preparation, testing and evaluation methods as well as safety and stability studies will be included. Updates of new technologies and raw materials used in micromuslons, liposomes, skin lightening and skin delivery systems are discussed.

**CP**0405 COLLOID AND POLYMER SCIENCE

Provides an overview of the principles of colloidal science and polymer science and its practical applications in cosmetic formulation chemistry. The different classes of polymers, their properties and applications in cosmetic formulations will be reviewed. In colloidal science, the topics include the dynamics of surfactants at interfaces, emulsion theory, stabilised systems, foams and dispersion systems in cosmetic formulations. New technologies such as microemulsions, iontophores and the use of organofunctional silicones will be covered as a basis for designing stable cosmetic emulsions.

**CP**0406 COSMETIC SCIENCE LABORATORY

Provides hands-on experience in formulating and evaluating hair and skincare products. The study of different emulsion types in creams and lotions as well as in surfactant systems will be covered. Knowledge of the major microorganisms and contamination sources causing spoilage to cosmetics will also be covered.

**CP**0407 MICROBIOLOGY A

Provides an overview of host-parasite relationships, and its role both in the practice of diagnostic microbiology and in the management of infectious diseases. Different immune systems involved in host defence and which lead to damage in response to infection are covered.

**CP**0408 MICROBIOLOGY B

Aims to provide a broad understanding of the biology, pathogenesis and diagnosis of infections caused by viral, fungal and parasitic pathogens that are medically relevant or foodborne. The use of therapeutic agent and preventive strategies will be included. New emerging illnesses and their suspected etiological agents are discussed.

**CP**0409 MICROBIOLOGICAL TECHNIQUES

Students will acquire practical skills in both conventional and rapid methods in diagnostic bacteriology and virology.

**CP**0505 INDUSTRIAL APPLIED AND ENVIRONMENTAL MICROBIOLOGY

Provides a reinforcement of the students' understanding of the microbial world. The module expands the microbiology issues beyond the medical industry into food, environmental, industrial and pharmaceutical industries. The key concepts of the applications of microbiology germane into the various industries are covered.

**CP**0510 RAPID METHODS AND AUTOMATION IN MICROBIOLOGY

Introduces standard and newly introduced rapid automated methods for the detection of microorganisms, as well as molecular genotyping methods for epidemiological studies. Basic bioinformatics tools for genetic and protein analysis are included.

**CP**0513 FOOD PRODUCT DESIGN

Today, consumers look for new experiences in the food they consume. Food technologists have to understand the market environment and unmask consumer insights before they embark on product development activities. The module examines the business and technical perspectives for development of new product concepts. Using the knowledge and skills learnt, students will identify product strategy and develop products taking into consideration cost, ingredients, nutrition and sensory attributes.

**CP**0512 CONSUMER AND SENSORY STUDIES

Sensory evaluation is an important tool for product development. Food manufacturers are recognising the value of using consumer and sensory studies to measure product acceptability, differences, improvements and opportunities. This module aims to provide deeper knowledge and practical tools in experimental design and sensory analysis. Case studies combined with hands-on sessions using statistical methods needed for sensory and consumer insight work will be used to reinforce understanding in this field.

**CP**0518 FOOD LEGISLATION

Food legislation compliance is important in order to safeguard the quality and safety of raw and processed food. This module exposes students to the practical issues with regard to the regulatory issues in the commercialisation of new food products for key markets. Students will apply the knowledge to evaluate ingredients, products and process for compliance with national and international regulations.

**CP**0514 SUSTAINABLE FOOD MANUFACTURING

This module analyses the sustainability issues in food manufacturing. Students will be exposed to minimal food processing techniques and novel technologies. Appropriate tools will be introduced and applied to improve food manufacturing processes in order to eliminate waste, decrease variation, enhance product quality and increase productivity.

**CP**0515 APPLIED FOOD PACKAGING

This module offers opportunities to establish connections between food chemistry, packaging design and material science. A spectrum of skills and know-how pertaining to the principles of packaging materials and technologies will be acquired. The concepts on shelf life evaluation will be reinforced through applications to various food products. Students will gain competency in integrating food packaging knowledge into the shelf life assessment of food products in accordance to performance, economics, brand value and identity, key packaging decisions making processes for the company.

**CP**0516 FOOD OPERATIONS MANAGEMENT

Food operations management is necessary to ensure effective and efficient food processing. This module aims to address both the ‘big picture’ and the decision making tools. It aims to provide a practical approach to solve operations problems and develop solutions to those problems that can make a difference to a firm’s competitiveness.

**CP**0517 APPLIED FOOD ANALYSIS

This module aims to provide an overview of the strategies in the selection of appropriate instrumental techniques. Through case studies, students will apply the strategies in method development, validation and estimation of measurement uncertainty.

**CP**0519 ADVANCED FOOD MICROBIOLOGY

This module aims to deepen the students’ practical skills in the areas of plant sanitation and monitoring and evaluation which are relevant in the food industry. Students will acquire both biochemical and microbiological tools to identify pathogens and spoilage microorganisms in different foods. Interpretation of microbiological test results will also be discussed.

**CP**0518 FOOD SAFETY MANAGEMENT SYSTEM

Food Safety Management System (FSMS) is an important requirement for organisations in the food chain to ensure that safe food is produced from farm to fork. The system provides a proactive, systematic and logical approach to enhance food safety compliance. This module builds on the prior knowledge of Hazard Analysis Critical Control Point (HACCP) system and Good Manufacturing Practices (GMP). It aims to emphasise effective auditing processes and techniques in setting up a FSMS using ISO22000 framework. The British Retail Consortium (BRC) Standard and crisis management programme.

**CP**1101 CAPSTONE PROJECT

The capstone project, designed by the company mentor and SP facilitator, allows trainees to apply their knowledge, analytical and problem solving skills specific to higher level of work. Through the project, students will develop a better understanding of the complex process of safe food production.

**CP**1102 ON-THE-JOB TRAINING (OJT)

OJT enables trainees to consolidate and apply theoretical knowledge to on-the-job activities in the industry. Through this, relevant occupational skills are deepened in at least one of the three functions, namely: Food Product Innovation, Food Processing and Food Safety and Quality Management.

**CP**1103 MATERIAL AND ENERGY BALANCE

This module covers principles of material and energy balances. It enables learners to perform material and energy balances on common unit operations of chemical processes. Learners will apply the principles through hands-on sessions using simulation pilots. Through case studies, students will apply the principles in method development, validation and estimation of measurement uncertainty.
This module covers the principles of thermodynamics for steady and unsteady processes in a safe manner. Learners will be able to derive relationships that quantitatively describe the transformation between different energy forms and link the effects of thermodynamics to various process operations.

This module covers the fundamentals and principles of processes in fluid flow, heat and mass transfer, as well as their application in the process industry. Learners will be equipped with relevant knowledge and skills to operate and troubleshoot fluid flow, heat and mass transfer equipment.

This module covers the design and operation of classical and advanced separation processes that are commonly found in the chemical industry. Learners will be attuned to the correct relationships between various process parameters and gain competence in the operation and troubleshooting of these processes and their associated equipment.

This module covers the science of speciality polymers and their applications. It covers the working principles for various end-use situations. With the help of case studies, students will be able to design product formulations and evaluation protocols to meet the desirable performance requirements in the targeted field of application.

This module introduces the concepts and methods of statistical data analysis using statistical tool such as Minitab with emphasis on interpretation of results. Topics include review of descriptive statistics, fundamental of sampling distributions and continuous probability distributions, concepts of inference and hypothesis testing, linear regression and correlation, analysis of single factor and factorial experiments, and statistical quality control.

This module provides students with an overview and an appreciation of the underlying principles and practice involved in the evolving field of exercise and sports nutrition. Students will be able to develop skills targeted in optimising nutrition-related strategies in both the fields of exercise undertaken for good health, as well as sports for performance.

This module aims to develop an in-depth understanding of cellular, tissue, organ and organismal levels. Topics include cellular adaptations and development project. Emphasis is on understanding human diseases on which students will have built the foundation for the Biomedical Science course in a research and development project. Emphasis is on independent learning, effective teamwork, problem-solving skills and communication skills in the process.

This module provides students with an overview and appreciation of the chemistry and functionalities of speciality chemicals such as surfactants and additives that are utilised in high performance applications (e.g. consumer care, lubricants, adhesives, coatings, paints etc.). They may be categorised according to their functions such as dispersants, foam boosters, wetting agents, emulsifiers, cleansing agents, solubilisers, photoinitiators, colourants, stabilisers, aesthetic enhancers, protective barriers and preservatives. The effective application of the ingredients will influence the final qualities of the formulations in accordance to specific requirements.

This module covers the science of macromolecules in terms of the underlying principles of chain- and step-growth polymerisation, concepts of average molecular mass and its distribution, polymer solution and rheology behaviour. It further develops an in-depth understanding of the relationship between structure, property and application of the various thermoplastics and thermosets.

This module serves as a culmination of the concepts and principles of chemical reaction engineering. Students will learn the different functions of nutrients, including their deficiencies and excesses accepted in health. They will also learn about the nutrient needs in the different stages of growth and learn how to read food labels.

This module introduces the principles of operations and control and troubleshoot automated systems. Students will be equipped with relevant knowledge and skills to control automated systems in the process industry. Learners will be equipped with relevant knowledge and skills to monitor, control and troubleshoot automated processes in a safe manner.

This module covers the fundamental principles and processes of fluid flow, transport and reaction. Design and operation. Various models for heat transfers with fluid flow in reactor systems affect exercise performance as well as sports for performance. The aim of this module is to provide students with an overview and appreciation of the chemistry and functionalities of speciality chemicals such as surfactants and additives that are utilised in high performance applications (e.g. consumer care, lubricants, adhesives, coatings, paints etc.). They may be categorised according to their functions such as dispersants, foam boosters, wetting agents, emulsifiers, cleansing agents, solubilisers, photoinitiators, colourants, stabilisers, aesthetic enhancers, protective barriers and preservatives. The effective application of the ingredients will influence the final qualities of the formulations in accordance to specific requirements.

This module covers the principles of fluid flow, heat transfer and mass transfer. This module covers the principles of fluid flow, heat transfer and mass transfer. This module covers the principles of fluid flow, heat transfer and mass transfer. This module covers the principles of fluid flow, heat transfer and mass transfer. This module covers the principles of fluid flow, heat transfer and mass transfer.

This module introduces the concepts and methods of statistical data analysis using statistical tool such as Minitab with emphasis on interpretation of results. Topics include review of descriptive statistics, fundamental of sampling distributions and continuous probability distributions, concepts of inference and hypothesis testing, linear regression and correlation, analysis of single factor and factorial experiments, and statistical quality control.

This module covers the principles of fluid flow, heat transfer and mass transfer. This module covers the principles of fluid flow, heat transfer and mass transfer. This module covers the principles of fluid flow, heat transfer and mass transfer.

This module applies chemical engineering concepts and principles to the design and operation of relevant industrial units. Students will learn the different functions of nutrients, including their deficiencies and excesses accepted in health. They will also learn about the nutrient needs in the different stages of growth and learn how to read food labels.

This module provides students with an overview and appreciation of the chemistry and functionalities of speciality chemicals such as surfactants and additives that are utilised in high performance applications (e.g. consumer care, lubricants, adhesives, coatings, paints etc.). They may be categorised according to their functions such as dispersants, foam boosters, wetting agents, emulsifiers, cleansing agents, solubilisers, photoinitiators, colourants, stabilisers, aesthetic enhancers, protective barriers and preservatives. The effective application of the ingredients will influence the final qualities of the formulations in accordance to specific requirements.

This module provides students with an overview and appreciation of the chemistry and functionalities of speciality chemicals such as surfactants and additives that are utilised in high performance applications (e.g. consumer care, lubricants, adhesives, coatings, paints etc.). They may be categorised according to their functions such as dispersants, foam boosters, wetting agents, emulsifiers, cleansing agents, solubilisers, photoinitiators, colourants, stabilisers, aesthetic enhancers, protective barriers and preservatives. The effective application of the ingredients will influence the final qualities of the formulations in accordance to specific requirements.

This module covers the fundamental principles and processes of fluid flow, transport and reaction. Design and operation. Various models for heat transfers with fluid flow in reactor systems affect exercise performance as well as sports for performance. The aim of this module is to provide students with an overview and appreciation of the chemistry and functionalities of speciality chemicals such as surfactants and additives that are utilised in high performance applications (e.g. consumer care, lubricants, adhesives, coatings, paints etc.). They may be categorised according to their functions such as dispersants, foam boosters, wetting agents, emulsifiers, cleansing agents, solubilisers, photoinitiators, colourants, stabilisers, aesthetic enhancers, protective barriers and preservatives. The effective application of the ingredients will influence the final qualities of the formulations in accordance to specific requirements.

This module covers the fundamental principles and processes of fluid flow, transport and reaction. Design and operation. Various models for heat transfers with fluid flow in reactor systems affect exercise performance as well as sports for performance. The aim of this module is to provide students with an overview and appreciation of the chemistry and functionalities of speciality chemicals such as surfactants and additives that are utilised in high performance applications (e.g. consumer care, lubricants, adhesives, coatings, paints etc.). They may be categorised according to their functions such as dispersants, foam boosters, wetting agents, emulsifiers, cleansing agents, solubilisers, photoinitiators, colourants, stabilisers, aesthetic enhancers, protective barriers and preservatives. The effective application of the ingredients will influence the final qualities of the formulations in accordance to specific requirements.

This module covers the principles and techniques of quality design, quality assurance and project management will also be employed.

This module provides students with an experience of the science of nutrition and the importance of nutritional adequacy and balance for optimal growth and health. The dietary sources of the major nutrients, their digestion, absorption, and metabolism are covered in the module. Students will learn the different functions of nutrients, including their deficiencies and excesses accepted in health. They will also learn about the nutrient needs in the different stages of growth and learn how to read food labels.

This module introduces the concepts and methods of statistical data analysis using statistical tool such as Minitab with emphasis on interpretation of results. Topics include review of descriptive statistics, fundamental of sampling distributions and continuous probability distributions, concepts of inference and hypothesis testing, linear regression and correlation, analysis of single factor and factorial experiments, and statistical quality control.

This module introduces a conceptual understanding of the science of nutrition and the importance of nutritional adequacy and balance for optimal growth and health. The dietary sources of the major nutrients, their digestion, absorption, and metabolism are covered in the module. Students will learn the different functions of nutrients, including their deficiencies and excesses accepted in health. They will also learn about the nutrient needs in the different stages of growth and learn how to read food labels.

This module covers the principles and techniques of quality design, quality assurance and project management will also be employed.

This module further extends the application of the formulation principles for other industrial product formulations (i.e. coatings, lubricants etc.). Students will leverage fundamental science and technology to create feasible solutions for various end-use situations. With the help of case studies, students will be able to design product formulations and evaluation protocols to meet the desirable performance requirements in the targeted field of application.

This module introduces the concepts and methods of statistical data analysis using statistical tool such as Minitab with emphasis on interpretation of results. Topics include review of descriptive statistics, fundamental of sampling distributions and continuous probability distributions, concepts of inference and hypothesis testing, linear regression and correlation, analysis of single factor and factorial experiments, and statistical quality control.

This module applies chemical engineering concepts and principles to the design and operation of relevant industrial units. Students will learn the different functions of nutrients, including their deficiencies and excesses accepted in health. They will also learn about the nutrient needs in the different stages of growth and learn how to read food labels.

This module provides students with an overview and appreciation of the chemistry and functionalities of speciality chemicals such as surfactants and additives that are utilised in high performance applications (e.g. consumer care, lubricants, adhesives, coatings, paints etc.). They may be categorised according to their functions such as dispersants, foam boosters, wetting agents, emulsifiers, cleansing agents, solubilisers, photoinitiators, colourants, stabilisers, aesthetic enhancers, protective barriers and preservatives. The effective application of the ingredients will influence the final qualities of the formulations in accordance to specific requirements.

This module introduces the concepts and methods of statistical data analysis using statistical tool such as Minitab with emphasis on interpretation of results. Topics include review of descriptive statistics, fundamental of sampling distributions and continuous probability distributions, concepts of inference and hypothesis testing, linear regression and correlation, analysis of single factor and factorial experiments, and statistical quality control.
CP2003 HISTOTECHNOLOGICAL TECHNIQUES
Provides the practical foundation for techniques in histopathology. Emphasis is on the ability to apply theory to bench practice in tissue fixation and processing, staining and instrumentation. Cryostomy and exfoliative cytology are also introduced.

CP2052 INTRODUCTORY PHARMACOLOGY
Provides students with the basic concepts of the physiological, biochemical and anatomical interactions of chemical agents with living tissues. Pharmacological principles and mechanisms will be taught. The pharmacodynamic actions of important drugs and poisons will also be covered.

CP2064 GENERAL BIOCHEMISTRY
Provides students with basic understanding of human biochemistry. The topics include introduction to biochemistry, nucleic acids, proteins, enzymes, vitamins and trace elements, carbohydrates, lipids and energy production.

CP2034 BLOOD BANKING
Equips students with a critical appreciation of blood transfusion science and provide a broad background in both practical and theoretical aspects of this subject. Major topics will include the theoretical basis of blood transfusion, concepts in transfusion practice and clinical aspects of transfusion therapy, organisation, management and quality control procedures will be included as appropriate together with practical experience.

CP2065 INTRODUCTORY ANATOMY AND PHYSIOLOGY
Introduces students to basic organisation of human anatomy and physiology. It covers the anatomical features of various systems and how it relates to physiological mechanisms and associated dysfunctions. Applications of physiology pertaining to bioengineering principles will be covered.

CP2081 ORGANIC CHEMISTRY – REACTION MECHANISM
Refer to CP4127.

CP2103 CLINICAL BIOCHEMISTRY
Introduces students to the scope of clinical chemistry and its role in medical laboratory technology. It provides students with an overview of the work involved in the clinical chemistry laboratory. Fundamentals of routine procedures will be given together with relevant clinical information. The module also covers the range of tests usually provided in routine screening procedures and the importance of good management and quality control procedures.

CP2104 HEMATOLOGY
Provides students with an overview of the work involved in clinical serology and haematology laboratories. Fundamentals of routine procedures will be given together with relevant clinical information.

CP2105 MEDICAL MICROBIOLOGY
Provides an overview of the etiology, clinical features, pathogenesis, laboratory diagnosis, epidemiology and control of the important bacterial, viral, fungal and parasitic pathogens that are medically relevant or foodborne. The use of therapeutic agents and preventive strategies will be included. Newly emerging illnesses and their suspected etiological agents will also be discussed.

CP2106 ADVANCED IMMUNOLOGY
Provides students with a broad understanding of the principles involved in diagnostic immunology. Aspects of the immune system in health and diseases are discussed in topics which include the role of the major histocompatibility complex in antigen processing and presentation, immunological tolerance and disorders of the immune response, transplantation and immunodeficiency states.

CP2107 INTEGRATED PATHOLOGY AND CASE ANALYSIS
Develops students with critical thinking skills and innovative thinking through review of research ideas and journal articles of scientists at the forefront of research.

CP2109 CURRENT TOPICS IN BIOMEDICAL RESEARCH
Enhances students’ learning on the latest updates on scientific research. Improves presentation and public speaking skills through seminars. Analysis of scientific papers through journal clubs will also be covered.

CP2116 BIO-ENTREPRENEURSHIP
Aims to introduce the concept of Bioentrepreneurship with the intent to identify business opportunities and to develop initial ideas into business plans and entrepreneurial projects.

CP212I CLINICAL RESEARCH MANAGEMENT
Aims to provide the knowledge and managerial skills in clinical research operations to liaise between human subjects and members of the clinical research team. This module emphasises on the planning, coordination, operational management, ethical and regulatory aspects of clinical research projects in medical and research institutions.

CP2130 LABORATORY SKILLS AND TECHNIQUES
Incorporate occupation/industry bench skills, such as microscopy, microbiology, cell culture, manipulation of nucleic acids etc. with some generic skills, such as the polymerase chain reaction, e.g., DNA extraction, centrifugation, micro-pipetting etc. Students also learn how to apply these techniques and skills in discussions of case studies during tutorials.

CP220Y/Z BIO-DISCOVER
Project work originating from modules Biotechnology and Bio-conceptualise will be carried out by students within a holistic learning environment involving teamwork, industrial and academic interactions.

CP2200 BIO-EXPLORE
Provides students with the freedom for innovative ideation in biotechnology-related projects to allow exploration of their inquisitive minds.

CP2201 BIO-CONCEPTUALISE
Provides students with the freedom to innovatively ideate biotechnology-related projects. Apply experimental design principles and conceptualise their project hypothesis. In the process, curiosity is sparked and teamwork is fortified in students.

CP2203 PHYSIOLOGY AND BIOCHEMISTRY
Introduces students to the basic organisation of the human anatomy through emphasis on the physiological and biochemistry of key body systems. The biochemistry behind cellular macromolecules and physiological mechanisms underlying associated tissue dysfunctions will be covered.

CP2204 MICROBIOLOGY
Provides students with the theoretical foundation as well as practical skills in microbiology. Module emphasises on good laboratory techniques in the handling and manipulation of microbes and laboratory safety.

CP2205 IMMUNOLOGY
Provides students with an overview of the fundamental concepts of immunology and its importance in clinical medicine. The key essential types and mechanisms of immunity response in defence and disease will be covered.

CP2206 CELL AND MOLECULAR GENETICS
Students will be introduced to the fundamentals of cell and molecular biology. Topics covered include the structure and function of cells, organelles and the central dogma of molecular biology. Gene expression and manipulation for recombinant technology will be covered.

CP2208 FLOW CYTOMETRY AND MICROSCOPY
Introduces the principles and application of flow cytometry and confocal microscopy. Students will be exposed to current flow cytometry and confocal microscopy platforms for applied research.

CP2209 ADVANCED CELL BIOLOGY
Provides students with concepts in cellular signal transduction, cell cycle and apoptosis. Their deregulation and associated pathologies including cancer will be covered. Students will learn about key concepts in stem cells and their reprogramming.

CP2210 ADVANCED CLINICAL BIOLOGY
Provides students with concepts in cellular signal transduction, cell cycle and apoptosis. Their deregulation and associated pathologies including cancer will be covered. Students will learn about key concepts in stem cells and their reprogramming.

CP2211 CELL AND TISSUE ENGINEERING
The upstream considerations and techniques in biologics production such as vector selection, transfection, proliferation and differentiation of cells and cell growth in bioreactors will be covered.

CP2213 DRUG DISCOVERY AND BIOINFORMATICS
Introduces the key concepts of bioinformatics and their applications including drug discovery. Basic and high throughout nucleic acids and proteins analysis as well as molecular interactions between drugs and target proteins are taught using current software programmes topics.

CP2220 PROTEOMICS
Provides an overview on the use of proteomics in biomarker discovery for disease detection. Students will also be introduced to methodology and techniques in protein extraction, separation and detection, including key techniques such as western blotting and 2D gel electrophoresis.

CP222I GOOD BIOSAFETY PRACTICES
Provides students with the knowledge and skills to follow good biosafety practices. Students will be able to understand and follow biosafety and laboratory biosafety principles and practices so as to minimise/eliminate potential workplace risks and threats. They will be able to interpret national and international biosafety legislations, standards and guidelines and comply with the requirements of biosafety and laboratory biosafety in the workplace.

CP222S CURRENT GOOD MANUFACTURING PRACTICE
Introduces students to the theory and principles of good manufacturing practice in the manufacturing industries including pharmaceuticals and biologics.

CP2227 HEALTH, SAFETY AND ENVIRONMENTAL MANAGEMENT
Provides students with the principles and methodology of risk assessment so that they can identify hazards and risks implement and propose risk control measures taking into consideration relevant legislations, standards and guidelines. Students are also able to apply and comply with safe work procedures at potentially dangerous environments or a clean room. Follow chemical safety procedures and interpret Safety Data Sheets.

CP2228 CGMP AND VALIDATION
Refer to CP4166.

CP2301 PHYSIOLOGY AND BIOCHEMISTRY
Introduces students to the basic organisation of the human anatomy through emphasis on the physiology and biochemistry of key body systems. The biochemistry behind cellular macromolecules and physiological mechanisms underlying associated tissue dysfunctions will be covered.

CP2302 MICROBIOLOGY
Provides students with the theoretical foundation as well as practical skills in microbiology. Module emphasises on good laboratory techniques in the handling and manipulation of microbes and laboratory safety.

CP2303 IMMUNOLOGY
Provides students with an overview of the fundamental concepts of immunology and its importance in clinical medicine. The key essential types and mechanisms of immunity response in defence and disease will be covered.
CP2304 CELL AND MOLECULAR GENETICS
Students will be introduced to the fundamentals of cell and molecular biology. Topics covered include the structure and function of cells, organelles, and the central dogma of molecular biology. Gene expression and manipulation for recombinant technology will be covered.

CP2306 HAEMATOLOGY
Aims to provide students with an overview of the work carried out in clinical haematology laboratories. Fundamentals of routine procedures will be covered with relevant clinical information.

CP2307 APPLIED HAEMATOLOGY
Builds on knowledge from module CP2306, with application of haematology in the investigation and diagnosis of various diseases.

CP2308 CLINICAL CHEMISTRY
Provides students with an overview of the practical and analytical skills in clinical chemistry. Students will learn the background pathophysiology of tests performed in a clinical chemistry laboratory and details of analytical methods involved.

CP2309 APPLIED CLINICAL CHEMISTRY
Provides theoretical foundation and practical skills in clinical chemistry. Students will learn the background pathophysiology of tests performed in a clinical chemistry laboratory and details of analytical methods involved.

CP2310 MEDICAL MICROBIOLOGY
Provides students with the theoretical foundation and practical skills in medical microbiology. The role of microbiology in the diagnosis, management and prevention of infections in patients will be emphasised.

CP2311 MOLECULAR MEDICAL MICROBIOLOGY
Provides students with a broad understanding of the principles involved in diagnostic microbiology and urinalysis. Identification of urological agents of urological and parasitological diseases and their characteristics will be covered. The diagnosis, management and prevention of these diseases will also be covered.

CP2312 ADVANCES IN LABORATORY MEDICINE
Provides students with the current understanding and advancements in diagnostic laboratory medicine with an emphasis on relevant case studies and builds on their understanding of the various disciplines of laboratory medicine.

CP2313 MOOD BIOFASY SAFETY
Provides students with the knowledge and skills to follow good biosafety practices. Students will be able to understand and follow biosafety and laboratory biosecurity principles and practices so as to minimise/eliminate potential workplace risks and threats. They will be able to interpret national and international biosafety legislation, standards and guidelines and comply with the requirements of biosafety and laboratory biosecurity in the workplace.

CP2314 CLINICAL INSTRUMENTAL ANALYSIS
Provides students with the technical knowledge and principles of instrumentation used in clinical laboratories and biomedical research applications. Emphasis will be on critical thinking, problem solving and instrumental analysis. The module will include the latest developments in the industry, including analysis with Liquid Chromatography (LC), Liquid Chromatography Mass Spectrometry (LC-MS).

CP2315 MOLECULAR TECHNIQUES FOR BIOSCIENCES
This module aims to offer the knowledge and practical principles of molecular laboratory techniques for biomedical diagnosis. Emphasis will be placed on acquiring competencies in fundamental practical skills and molecular techniques for biomedical research, cancer monitoring and diseases diagnosis. This module also builds upon students' basic knowledge in cell and molecular genetics. By providing extensive hands-on experience from basic cell culture techniques to key techniques used in molecular biology & genetics analysis. In addition to mastering current molecular techniques, students will learn about important current methodologies in the field of molecular biology such as next generation sequencing (NGS) etc.

CP2316 CLINICAL APPLICATIONS OF CARDIAC DRUGS
The module aims to provide students with an overview of the indication, adverse drug reaction and clinical application of commonly used cardiac medications. Students will also learn to perform calculations for the administration of medications. Commonly used medical abbreviation is also introduced in this module.

CP2317 OCULAR PHARMACOLOGY
Introduces students to the basic concepts of pharmacology and ocular drugs. Ocular diagnostic and therapeutic drugs such as mydriatic, miotic, cycloplegic and glaucoma drugs are covered. Students are given a good understanding of ocular and systemic side effects of ocular and some commonly seen general drugs.

CP2318 PHYSIOLOGICAL AND VISUAL OPTICS
Provides information on the function of the visual pathway including the study of spectral sensitivity, colour perception and luminance. The module introduces the concept of the visual system. Topics include emmetropia and ametropia of the eye, distribution and correction of refractive errors, visual resolution and ocular aberrations, ocular transmission characteristics, retinal stimulus pattern and basics of eye movements.

CP2319 GEOMETRICAL AND PHYSICAL OPTICS
Covers the study of physical optics, aberrations, photometry, laser and fibre optics. It also provides a basic understanding of the optics of thin lenses, lens systems and aberrations.

CP2320 OCULAR ANATOMY AND PHYSIOLOGY
Aims to give students an understanding of the anatomy and functions of the eye. Students learn the eye and its surroundings and the importance of their physiology in maintaining good vision.

CP2321 BIOCHEMISTRY
Students will have an overview of basic concepts in metabolism with emphasis on relationships and interactions between the pathways and tissues. In addition students will learn the major biosynthetic and degradative pathways of biomolecules with emphasis on energy generation and consumption; and the integration of these pathways in living cells.

CP2322 ADVANCED CLINICAL OPTOMETRY I
CP2323 CP2316
CP2315
CP2314
CP2313
CP2312
CP2311
CP2310
CP2309
CP2308
CP2307
CP2306
CP2305
CP2304
CP2303
CP2302
CP2301
CP2300
Students will be introduced to the healthcare delivery system within Singapore and optometrists' role in this system. It also provides students with the knowledge of public health and in particular vision and ageing, blindness and low vision. The module also provides the techniques and rationale of optical coherence tomography assessment. Further clinical intervention in the form of spectacle and contact lens wear is also covered.

CP2324 LOW VISION AND COMMUNITY HEALTH OPTOMETRY
Introduces students to the healthcare delivery system within Singapore and optometrists' role in this system. It also provides students with the knowledge of public health and in particular vision and ageing, blindness and low vision. The module also provides the techniques and rationale of optical coherence tomography assessment. Further clinical intervention in the form of spectacle and contact lens wear is also covered.

CP2325 HUMAN PHYSIOLOGY AND CELL BIOLOGY
Introduces students to the structures of various organs in the human body and the relationships among their systems.
CP4030 QUALITY ASSURANCE AND STATISTICS
Provides an understanding of the important concepts on quality assurance, statistical analysis and design in the chemical manufacturing industry. Topics covered include statistical tools used for quality assurance, basic testing, analysis of variance, factorial design of experiments and acceptance sampling plan.

CP4048 ADVANCED INSTRUMENTAL AND LAB TECHNIQUES
Aims to provide students with theoretical knowledge for the qualitative and quantitative analysis of chemical compounds and practical skills in advanced instrumental and laboratory techniques. It provides students with a capability for problem solving and recommending appropriate techniques to analyse an unknown compound. The student learns to think independently as well as to communicate effectively with colleagues. This module builds on the learning in module CP4009 Basic Instrumental Analysis.

CP4049 LABORATORY MANAGEMENT
Equips the students with the essential knowledge and skills in ensuring good laboratory management in accordance with ISO17025 requirements for accreditation as a competent chemical testing laboratory. The module also encompasses validation of analytical testing methodology: measurement of uncertainty to ascertain the accuracy of results and safety management of chemicals in a laboratory. In addition, students are taught essential statistical techniques (T-test, T-Test and Q-test) for evaluation of test results. Case studies of laboratory audits are also used to enhance students’ understanding in the operation of an ISO17025 accredited laboratory.

CP4104 FORENSIC CHEMISTRY
Provides students with knowledge of instrumental analysis techniques in organic chemistry so that students are able to explain important reaction pathways, devise organic syntheses and elucidate organic compounds with acquired advanced instrumental data.

CP4121 PHARMACEUTICAL MICROBIOLOGY
Provides students with an overview of basic knowledge and skills on aspects of biotechnology that are applicable to the production of biopharmaceuticals.

CP4123 PHARMACEUTICAL MANUFACTURING
This module aims to provide students with basic knowledge of pharmaceutical manufacturing processes and drug development processes. It describes the major unit operations adopted in primary manufacturing of active pharmaceutical ingredients and secondary manufacturing, including equipment cleaning, solid containment and utility systems.

CP4127 ORGANIC CHEMISTRY — REACTION MECHANISMS
Provides students with the fundamentals of organic synthesis and reaction mechanisms. Topics include stereochemistry, chemical kinetics, substitution, addition and elimination reactions.

CP4128 ENVIRONMENTAL STUDIES
Deals with the application of the underlying principles and key concepts of environment science and how these can be applied to the resolution of contemporary issues on global warming, climate change, environmental degradation, transboundary pollution, species extinction, soil remediation, etc. Also included are topics on occupational safety and health at the workplace and the applicable segments of the Workplace Safety and Health Act 2006. Practical classes will impart to students hands-on laboratory skills and experience relating to air and water pollution while individual case study assignment will develop students’ awareness and global perspective of the current developments in environmental science and management.

CP4135 LABORATORY SKILLS IN ANALYTICAL AND PHYSICAL CHEMISTRY
Aims to equip students with the analytical and observation skills critical for working in the laboratory. They will acquire these skills through different experimental methods with particular emphasis on the appropriate use of different glassware, commonly used laboratory equipment and glass pipettes. The skills and knowledge learnt will also reinforce the theories covered in the physical and analytical modules which provide the foundation for the second and third year modules. Upon successful completion of this module, students should be able to carry out essential analytical and physical experiments independently. They will also be able to write a formal scientific report.

CP4136 LABORATORY SKILLS IN INORGANIC AND ORGANIC CHEMISTRY
Aims to equip students with the analytical and observation skills critical for working in the laboratory. These skills will be developed through experiments emphasising on nomenclature, filtration, melting point determination and qualitative analyses of inorganic and organic compounds. The skills and knowledge learnt will also reinforce the theories covered in the inorganic and organic modules which provide the foundation for Year 2 and Year 3 modules. Upon successful completion of this module, students should be able to carry out essential inorganic and organic experiments independently. They will also be able to write a formal scientific report.

CP4137 PHYSICAL CHEMISTRY
Provides students with a fundamental understanding on how materials behave and how chemical reactions occur at the molecular and atomic level. It enables students to gain knowledge on the concepts of equilibrium thermodynamics, where a unified view of equilibrium, physical and chemical changes would enhance their insights into the relevant chemical reactions in various industries. Students will also be able to relate physical sciences to everyday life occurrences and recognise the importance of physical chemistry in their lives.

CP4142 POLYMER MATERIALS
Provides students with knowledge of both commodity and engineering plastics pertaining to their manufacture, property and applications. Students will also learn about cost effective additives such as heat stabilisers, plasticisers, nucleating agents and fillers that enhance performances.

CP4144 MATERIALS CHARACTERISATION & FAILURE ANALYSIS
Provides students with an overview of the common testing and characterisation techniques, including mechanical testing, infra-red spectroscopy, thermal analysis, chromatography and microscopy.

CP4146 MATERIALS PROCESSING
Aims to equip students with the skills and knowledge critical for processing of different materials. They will acquire these skills through carrying out commonly used processes for polymers, metals and ceramic. The skills and knowledge learnt will also reinforce the theories covered in the materials and materials processing modules. Upon successful completion of this module, students should be able to select and carry out an appropriate processing method for different materials.

CP4149 MATERIALS LABORATORY SKILLS
Aims to equip students with the skills critical for testing and characterising different materials. They will acquire these skills through different experiments. The skills and knowledge learnt will also reinforce the theories covered in the modules which provide the basis for third year module. Upon successful completion of this module, students should be able to carry out essential testing and characterisation of materials independently.

CP4150 MATERIALS, DESIGN AND APPLICATIONS
Provides students with knowledge of the fundamentals of product design, development and commercialisation as well as materials and their applications. It will also give them practice in using different experimental analysis techniques in product modelling and rapid prototyping. The subject also supports the overall course aim of developing problem solving skills and encouraging students to think and learn both independently and in a team.

CP4152 SPECIALITY CHEMICALS
Covers the fundamentals and applications of industrial specialty chemicals such as detergents, plasticisers, fire chemicals and industrial catalysts. Also included are polymers, solvents, fuel additives, adhesives. Key manufacturing processes and raw materials optimisation are also covered.

CP4153 PETROCHEMICALS AND ITS APPLICATIONS
To provide students with the detailed theoretical knowledge of the various processes and the chemistry involved in refining petroleum to basic chemical building blocks, followed by their conversion to some useful common and specialty chemicals. The importance of petrochemicals to Singapore’s economy is discussed. Students will acquire the essential skills to determine the physical and chemical properties of petroleum products and petrochemicals.

CP4156 PHARMACOLOGY AND PHARMACEUTICAL CHEMISTRY
Provides knowledge on pharmaceutical industry and its products. It outlines the drug development process from synthesis to market launch and describes common drug classes and their applications in terms of structure–activity relationships, mechanisms of action, therapeutic uses and side effects. Students will gain theoretical and practical skills on the synthesis and analysis of active pharmaceutical ingredients and finished dosage forms.

CP4158 SPECIALITY CHEMICALS
Covers the fundamental and advanced knowledge on the various types of petrochemical and its properties and their applications in the different industries such as food, aerospace, clean technology and healthcare. Activities illustrating the concepts will be incorporated to create a more engaging and stimulating learning environment.

CP4159 ADVANCED MATERIALS
Recent technological breakthroughs and the drive for new functions have generated demand for novel and innovative materials. The effort of developing innovative advanced materials has been increasing. Materials, biomaterials, green materials and composite materials has been on the increase. The module aims to equip the students with knowledge on the current developments in materials, properties and applications, and current development of different types of advanced materials, to encourage students to think and learn both independently and in a team.
CP4564 ENVIRONMENTAL STUDIES
Provides students with knowledge of the underlying principles and key concepts of environment science and how these can be applied to the resolution of contemporary issues on global warming, climate change, environmental degradation, transboundary pollution, species extinction, soil remediation, etc. Also included are topics on occupational safety and health in the workplace and the applicable segments of the Workplace Safety and Health Act 2006. Practical classes will impart to students hands-on laboratory skills and experience relating to air and water pollution while individual case studies assignment will develop students’ awareness and global perspective of the current developments in environmental science and management.

CP4518 THE ART OF PERFUMERY
Covers a brief history of how perfumes evolved over the years. The students will also be introduced to the classics of perfumery such as Joy, No. 5 and L’air Du Temps. The applications of fragrances will be covered to depict the evolution of perfumery. During the practical sessions, students will learn how to construct simple floral bases such as rose and jasmine as well as concoct simple base formulations. These simple base concoctions will be dosed into different products to illustrate the applications of fragrances.

CP4552 FORMULATION SCIENCE OF COSMETICS
Studies the chemistry behind cosmetic products formulation. Different amulsion types in creams and lotions as well as surfactant systems will be covered. The students will learn the chemical reactions that may take place when raw materials are mixed together. They will be exposed to the different areas of fragrances and toiletries and be discussed. The selection of different types of raw materials to form a stable cosmetic product will be demonstrated as well as the application of HLb system. The students will have hands-on experience in the selection of surfactants, emollients, emulsifiers, fragrances and preservatives for different cosmetics.

CP4557 LABORATORY MANAGEMENT
Covers the various product development stages from conceiving creative ideas, prototyping to planning of feasible marketing strategy. It is an integrated hands-on module for students to engineer commercially viable fragrances and/or cosmetic innovations by leveraging on Design Thinking framework.

CP4562 INORGANIC CHEMISTRY
Provides students with knowledge of the underlying principles and key concepts of inorganic chemistry as well as the practical importance of the knowledge and skills acquired throughout the course to solve practical problems involving product development, experimental analysis, chemical synthesis or applied R&D. Students work in small groups under the supervision of a lecturer. Grading is by in-course assessment and project seminar.

CP4574 COATINGS, ADHESIVES AND ELASTOMERS
Provides students with knowledge on the properties and applications of different types of surface coatings, adhesives, elastomers and inks. Students will be given an overview on selecting polymers and additives to produce the formulations. The characteristics, evaluation of performance and applications of coating and elastomeric products will also be covered.

CP4477 BIOCHEMISTRY
This module aims to provide students with an understanding of the structures of macromolecules like water, protein, carbohydrates, lipids and enzymes and enzyme kinetics. Their roles within the cells will also be covered in this module.

CP4503 CELL BIOLOGY
Provides students with an overview and appreciation of the biology of cells and microorganisms. The module emphasises the importance of living cells and microorganisms to man and the environment. Students will have practical experience with basic biological lab techniques.

CP4505 THERMODYNAMICS
We can deliver a unified view of equilibrium phenomena. Concepts are needed for the understanding of thermodynamics in particular of enthalpy and entropy is where the understanding of thermodynamics in chemistry as well as the physical properties of the environment. Students will have an overview of the different areas of equilibrium in chemistry as well as the physical properties of the environment.
CP5006 ENVIRONMENTAL ENGINEERING
Provides students with basic understanding of environmental pollution and its various treatment technologies such as water and wastewater treatment. Students will also be introduced to legislations relating to environmental protection in Singapore and concepts of environmental management system. Students are also required to complete a project-based on real-world issues that will serve to instill ethical responsibility and develop global perspective.

CP5033 MEMBRANE SCIENCE AND TECHNOLOGY
Provides students with basic understanding of membrane science and their applications in chemical, environmental and biomedical engineering. Examples of such applications include gas separation and pollution control.

CP5038 INDUSTRIAL WASTE MANAGEMENT
Provides students with basic understanding of different types of industrial wastes such as petrochemical and semiconductor wastes, as well as their proper treatment technologies and management strategies.

CP5054 FUEL CELLS & BIOMASS ENERGY
This module aims to provide students with an understanding and appreciation of fuel cell technology and energy from biomass systems. Students will learn the working principle of various fuel cell types and be familiarized with its operation via hands-on practical sessions. This module will also introduce students to the sources of biomass energy and its potential as a future clean energy source. The topic on biodiesel production is included alongside an industrial visit to a biodiesel production plant.

CP5062 PLANT DESIGN ECONOMICS AND SUSTAINABLE DEVELOPMENT
Provides students with an opportunity to complete a process design of a selected chemical plant using process simulation design software. Students will also need to access viability of their design through making critical decisions and rigorous project cost estimation, as well as applying sustainable development principles.

CP5065 INTRODUCTION TO CHEMICAL PRODUCT DESIGN
Provides students with basic understanding of chemical product design. Students will also be given an opportunity to create chemical products of at least limited functionalities.

CP5070 CHEMICAL PRODUCT DESIGN AND DEVELOPMENT
Provides students with an opportunity to refine and improve their chemical products from CP5065 Introduction to Chemical Product Design using chemical product development techniques such as TRIZ and reverse engineering.

CP5071 GREEN ENGINEERING AND ALTERNATIVE ENERGY
Provides students with basic understanding of sustainable green engineering in chemical industries and alternative energy sources such as biofuels and fuel cells.

CP5082 PETROLEUM REFINING AND ENHANCEMENT TECHNOLOGIES
Provides students with basic understanding of petroleum refining and enhancement technologies such as thermal cracking and catalytic reforming.

CP5083 PETROCHEMICALS AND CONVERSION TECHNOLOGIES
Provides students with basic understanding of different types of petrochemicals such as ethane and benzene, as well as their conversion technologies such as pyrolysis cracking and hydrocracking.

CP5084 SPECIALITY CHEMICALS AND PRODUCT FORMULATIONS
Provides students with basic understanding of different types of specialty chemicals such as water-soluble polymers. Students will also be introduced to product formulation techniques for specialty chemicals.

CP5087 ENVIRONMENTAL BIOREMEDIATION TECHNOLOGIES
Provides students with basic understanding of environmental monitoring for different types of environmental pollutants. Students will also be introduced to different bioremediation technologies for recalcitrant chemicals and pollutants that are generated by the chemical industries.

CP5099 STATISTICS
Provides students with basic understanding of quality assurance and statistical analysis of energy and chemical industries.

CP5105 INTRODUCTION TO CHEMICAL ENGINEERING
Provides students with basic understanding of chemical engineering principles and measurements. Students will also be provided a basic understanding of the chemical engineering via tasks that mimic real-world work that are typical of chemical engineers and chemical engineering technologies.

CP5109 MATERIALS FOR DESIGN
Provides students with basic understanding of material selection and its effects on form, look and functionality of chemical engineering products. Students will also be introduced to concepts of sustainable development in material selection.

CP5192 CHEMICAL ENGINEERING THERMODYNAMICS
Provides students with basic understanding of thermodynamic principles such as ideal gas laws and Henry's law on reactive and non-reactive processes.

CP5193 HEAT TRANSFER AND EQUIPMENT
Provides students with basic understanding of heat transfer mechanisms such as conduction and convection, as well as their applications in industrial heat transfer equipment such as shell-and-tube heat exchanger and climbing film evaporator. Students will also be introduced to heat transfer phenomena such as evaporation and boiling and concepts of sustainable development via heat integration will also be covered. Students will also learn process simulation design software to perform heat exchanger design and sizing.

CP5199 CHEMICAL REACTION ENGINEERING
Provides students with basic understanding of chemical reaction kinetics and their applications in designing chemical reactors such as CSTR and PFTR. Students will also be introduced to concepts of sustainable development via green chemical reaction processes.

CP5209 CHEMICAL ENGINEERING DESIGN CALCULATIONS
Students learn to perform design and sizing calculations for various unit operations and utility lines and equipment. Students will also learn process simulation design software to model the processes.

CP5219 CHEMICAL REACTION ENGINEERING
Provides students with basic understanding of major unit operations such as crystallisation and purification in pharmaceutical manufacturing processes.

CP5230 BIOPHARMACEUTICAL ENGINEERING
Provides students with basic understanding of major unit operations in large-scale biopharmaceutical production, as well as the respective equipment and instruments used.

CP5101 PLANT SAFETY AND ENGINEERING ETHICS
Provides students with basic understanding of loss prevention principles and safe work practices, as well as their applications in safety management in chemical process plants. Students will also be introduced to relevant Singapore Standards such as S558.

CP521Y/Z CAPSTONE PROJECT
Provides students an opportunity to carry out applied research projects in a specialised topic of their choice.

CP5201 LAB AND PROCESS SKILLS 1
Students learn basic skills required in the laboratory and process operations, including integrating PIDFs and P&IDs and perform line tracing.

CP5202 LAB AND PROCESS SKILLS 2
Students learn to operate pumps, compressors, heat exchangers, start-up and shut down unit operations.

CP5203 PROCESS OPERATION SKILLS 1
Students learn to start-up and shut down various separation process unit operations maintain steady-state through monitoring and controlling process parameters.

CP5204 PROCESS OPERATION SKILLS 2
Students learn to start-up and shut down various reactors, maintain steady-state through monitoring and controlling process parameters, as well as process problem troubleshooting.

CP5205 APPLIED NUTRITION
Covers the energy and nutrient requirements to support normal growth and development and the various nutrition-related concerns in relation to the human life cycle. In addition, students will learn about the use of functional foods and nutraceuticals to enhance health. They will also have an overview of nutrigenomics.

CP6010 PROJECT
Aims to reinforce students’ understanding of the microbial world. This module will emphasise on students’ practical skills in the areas of new foodborne pathogenic microorganisms. The students will be taught on the improved methods for detecting and enumerating foodborne microorganisms and spoilage microorganisms. This will enable them to acquire and develop a full appreciation of the microbiological techniques and take on responsibility in maintaining the quality and safety of our foods.

CP5207 NUTRITION
Provides students with a basic understanding of the science of nutrition and the importance of nutritional adequacy and balance for optimal growth and health. The dietary sources of the major nutrients, their digestion, absorption, and metabolism will be covered. Students will learn the functions of nutrients, deficiencies and excesses and their effects on health.

CP5215 FOOD MICROBIOLOGY
Provides students with an opportunity to carry out applied research projects in a specialised topic of their choice.

CP521Y/Z CAPSTONE PROJECT
Provides students an opportunity to carry out applied research projects in a specialised topic of their choice.

CP6004 FOOD MICROBIOLOGY
Aims to reinforce students’ understanding of the microbial world. This module will emphasise on students’ practical skills in the areas of new foodborne pathogenic microorganisms. The students will be taught on the improved methods for detecting and enumerating foodborne microorganisms and spoilage microorganisms. This will enable them to acquire and develop a full appreciation of the microbiological techniques and take on responsibility in maintaining the quality and safety of our foods.
FOOD PROCESS ENGINEERING

CP6031

Students will learn the fundamental importance of food product development and sensory analysis as well as packaging, students will utilise their knowledge and skills to develop food products for consumer acceptability and current food trends with good sensory and nutritional qualities and marketability.

CP6032

INSTRUMENTAL ANALYSIS

Consumers become more demanding more critical, and broader in their food selections. These behaviours have led to the development and increased industrialisation of the food supply chain. Thus, food quality and safety have become the dominant issues in today’s food economics in order to satisfy consumers. The demand for higher quality and safety food has called for a need for accurate, appropriate and rapid analytical tools to investigate food. Advances in instrumental analysis, for example chromatography and spectrophotometric techniques, play an important role in ensuring food safety and quality from farm to fork. Hence this module aims to familiarise students with the basic concepts of chromatography and spectrophotometry and to equip them with the technical skills to operate and perform advanced instrumental analytical techniques for food analysis.

CP6033

FOOD SAFETY AND QUALITY MANAGEMENT

When food is processed on a large scale, there are many instances where safety may be compromised and consequently their consumption may adversely affect the health and safety of the consumer. The knowledge and understanding of food safety, quality and quality systems as well as legislation thus become important to anyone working in food processing and production. At the end of the module, students will have a good overview of the standards and legislations relating to the quality and safety of the ingredients, processing systems and equipment as well as the packaging and sale of the food product to ensure safe consumption and customer satisfaction.

CP6034

PROCESS DESIGN AND IMPLEMENTATION

Through the DFST course, students learnt food technology modules such as food preservation, food ingredients, food product development, food engineering and food safety and quality. The aim of this module is to help students integrate this knowledge to design food-processing systems and implement their design through product and process development. In their learning journey, students will have to display working skills at problem solving, planning, team work, reporting and presentation.

CP6038

BUSINESS DESIGN INFUSED WITH TECHNOLOGY EXPERIENCE (B.T.E.) PROGRAMME

Knowledge application from an academic setting into the world of work is often challenged for students. This module will provide an opportunity for them to ease into working life by learning through solving issues in real-life commercial products at the premise of Food Innovation and Resource Centre (FIRC) located at SP. Their knowledge in food preservation, food ingredients, food product development, food engineering and food safety and quality learnt in their first two years in the DFST course will be integrated to conceptualise and develop food products.

CP6039

FOOD PROCESSING PRINCIPLES

Food processing plays a critical role in improving raw materials into higher value food products with extended shelf lives, increased variety and enhanced quality. Effective design and management of the various stages of the process requires an intimate understanding of the characteristics of the food materials being processed as well as technologies and engineering concepts underpinning the process. This module provides an introduction to the fundamental knowledge of raw material preparation, mixing operations, material transport, material balance and process control. After completing this and two subsequent modules in Food Preparation and Food Process Engineering, students will be competent to work in the food processing industry.

CP6045

FOOD TRENDS AND REGULATIONS

Consumer beliefs and preferences play a crucial role in the types of food being sold in the market. Thus, having an overview of the current food trends in food products, food ingredients and food processing technology is important. In addition, understanding the legal framework and the governance of food standards in Singapore or selected countries is essential if the product is to be launched in these legislations safeguard the quality and safety of raw and processed food.

CP6050

FOOD PRESERVATION

Food is susceptible to deterioration and spoilage due to the deleterious effects of natural enzymes, microorganisms, pests and the environment (e.g. temperature, air, and humidity). Food spoilage can be reduced or prevented by employing certain preservation methods to stabilise and preserve its quality and safety. This module aims to provide students with the knowledge and understanding of how foods can be preserved through these means. Students will learn the basic hands-on skills to operate commonly used food preservation equipment, and learn to be safety conscious when working with the various food-processing equipment.

CP6054

BASIC MICROBIOLOGY

Provides students with an overview and appreciation of the basic microbiology. The topics taught include the prokaryotes, eukaryotes, cell structure and organelles. Students will also learn the taxonomy hierarchy for bacteria, features of yeasts, moulds and life cycle of virus. This module covers the physical and chemical growth requirements for microorganisms and microbial growth. Students will gain practical experience with basic biological lab techniques to use a microscope, stain microscopic specimens, inoculate, isolate, cultivate and enumerate microbial cells. At the end of the module, they will have a strong foundation of microbiology which is needed in their second year Food Microbiology module.

CP6055

CULINARY SCIENCE

There is an increasing demand in the food industry to employ chefs for their culinary expertise and food technology knowledge for their technical expertise. Being able to recommend and execute appropriate food preparation techniques have direct impact on the stability and acceptability of the final food product. As such, food product development and the application of the knowledge of food standards in Singapore or selected countries is essential if the product is to be launched in these legislations safeguard the quality and safety of raw and processed food.

CP7002

NUTRITION

Provides students with a basic understanding of the science of nutrition and the importance of nutritional adequacy and balance for optimal growth and health. The dietary sources of the major nutrients, their functions and requirements will be covered. Students will learn the functions of nutrients, deficiencies and excesses and their effects on health.

CP7003

INTRODUCTION TO HEALTH AND WELLNESS

Introduces students to the constructs of health and wellness from personal and societal perspectives. The module focuses on personal health and wellness with an emphasis on increasing knowledge and awareness of a wide variety of health-related topics as well as on improving individual health.

CP7004

CELL BIOLOGY, MICROBIOLOGY AND IMMUNOLOGY

Introduces students to the fundamental characteristics and features of living cells and microbes (bacteria, fungi and viruses). The module will cover the structure and function of major cellular components and the roles of various types of specialised cells in the human body and the techniques and applications of microbial systems. Students will gain an overview of the cells and tissues of the immune system and their interactions, the importance of inflammation and complement biology.

CP7005

ANATOMY AND PHYSIOLOGY

Introduces students to basic organisational human anatomy. It covers the anatomical features of various systems and how they relates to physiological mechanisms and associated dysfunctions.

CP7006

FITNESS AND WELLNESS THROUGHOUT THE LIFESPAN

Examines the basis of sports and fitness science. Introduces the various types of physical activities, exercise and sports and development and the various nutrition-related concerns in relation to the human life cycle. In addition, students will learn about the various physical and nutritional needs of individuals in different situations.

CP7008

HEALTH EDUCATION AND HEALTH PROMOTION

Covering the perspectives of the development of health education and health promotion, health determinants, resources and interventions. Emphasises the importance of healthy behaviour. A comparison is made between the major concepts and theories of health and characteristics of health education programmes in the community. Application to health education and promotion will be emphasised.
Synopses

CPT015 EXERCISE PHYSIOLOGY
Provides an introduction to the physiological principles that explain how the human body functions during exercise.

CPT017 NUTRITION AND DISEASE
Emphasizes on the relationship between nutrition and human disease processes with special emphasis on chronic degenerative diseases.

CPT018 HEALTH AND AGING
Examines from an interdisciplinary perspective the health problems associated with ageing and the complex interaction of physical, nutritional, psychosocial, and environmental issues that influence health and well-being of older adults. The module also provides an overview to the planning, implementation, and evaluation of nutrition and health programmes for the older adult population.

CPT020 CLINICAL NUTRITION
Focuses on the medical nutrition therapy for the sick, and medically compromised people/patients. A continuation from the nutrition and disease module, this module further explores medical conditions such as underlying nutritional support and medical diseases with illustrative clinical case histories. The module also focuses on covering the principle of evidence based medicine. It allows students to explore the core principles of clinical nutrition and to apply these throughout their training to foster critical thinking.

CPT021 PUBLIC HEALTH AND COMMUNITY NUTRITION
Introduces the role of public health and nutrition at the local, national and international level. An emphasis is placed on nutrition education, food habits, survey methodology and current topics in the area of public health and community nutrition.

CPT023 SPORTS AND EXERCISE NUTRITION
Allows students to integrate their knowledge of nutritional physiology and biochemistry, and intermediary metabolism with that of exercise physiology. Students can then develop an understanding of the nutritional and practical dietary needs of sports people and athletes. It includes a discussion of different sporting groups and exercise types; macro- and micronutrient requirements; practical dietary considerations in relation to training and competition and current issues and research in sports nutrition.

CPT028 PHYSICAL FITNESS ASSESSMENT AND EXERCISE PRESCRIPTION
Provides students with an overview and appreciation of the widespread physical fitness assessment and exercise prescription. The students will learn to apply the knowledge of exercise physiology in the fitness and performance arena to attain general wellness levels and achieve maximum performance in sport or exercise. Students will also be taught the various methods and considerations in prescribing exercise for the general and special populations.

CPT029 BASIC BIOMECHANICS
Gives an introduction to basic biomechanical principles and concepts as applied in the field of sports and exercise science. Students will understand the physics behind human movement as well as calculate human and projectile motion parameters. On completion of this module, students will have increased awareness and understanding of the applications of basic biomechanics in the playing field.

CPT030 RESEARCH METHODS
Introduces the basic knowledge needed to design and carry out a research project and equips students with the skills needed to evaluate scientific studies. These are important to the students as future practitioners in the field of nutrition, health and wellness where an evidence-based approach is needed in the design and evaluation of health programs. This module will complement the module Final Year Project.

CPR501 INORGANIC CHEMISTRY
Aims to provide the essential knowledge and understanding on fundamental principles in the fundamentals of inorganic chemistry such as atomic structure, chemical periodicity, chemical bonding and the chemistry of transition metals that will be essential for the understanding of other chemistry disciplines. The module will impart essential preparative and analytical skills for inorganic chemicals.

CPR502 ANALYTICAL CHEMISTRY
Aims to provide students with the fundamental knowledge and skills for Analytical Chemistry. On completion of this module, students will have learnt the fundamentals of analytical chemistry which include concepts of common chemical reactions in aqueous medium (such as acid-base neutralisation and oxidation-reduction reactions) and the underlying principle of a typical analytical procedure. They will also be competent on the fundamentals of stoichiometric and kinetic analysis and acquire the problem-solving skills of using stoichiometric calculations.

CPR504 MICROBIOLOGY
Aims to provide students with basic understanding of microbiology. The methodology used in the study of microorganisms will be taught and reinforced during the practicals for students to acquire basic skills in aseptic techniques. In addition, students will be given an overview of the importance of and use of microbes in the food industry in treatment of environmental oil spills and bioremediation, geochemical life cycles and human diseases.

CPR507 ENVIRONMENTAL AND WATER TECHNOLOGY
Aims to provide students with the underlying principles and key concepts of environmental and water technology and how these can be applied to the resolution of contemporary global issues such as climate change, environmental degradation, transboundary pollution, species extinction, soil remediation, etc. It enhances a growing environmental awareness towards waste minimisation, environmental impact assessment, industrial health and safety, quality and purification of water. Practical classes will impart to students hands-on laboratory skills and experience related to water and water analysis while case studies assignment will develop students awareness and global perspectives of the current developments in environmental and water technology.

CPR508 GOOD LABORATORY PRACTICE AND MANAGEMENT
On completion of this module, individuals will be competent in terms of knowledge and skills in managing an accredited laboratory. He or she will also be trained to maintain the rigour of a quality documentation and technical competency in a testing environment. It is taught with international standard guidelines on good laboratory practices and management. They can work efficiently and effectively in a chemical/biological accredited laboratory.

CPR509 APPLIED STATISTICS AND QUALITY ASSURANCE
Aims to provide students with fundamental understanding of important concepts of ISO 9000, ISO 14000, quality assurance and the use of statistics in quality control in control charts and experimental design in the chemical manufacturing, life science and service sectors.

CPR510 ORGANIC CHEMISTRY – REACTION MECHANISMS
Aims to give students the fundamental concepts of organic chemistry and its reaction mechanisms. Common reaction mechanisms are taught in detail. Laboratory sessions on the application of kinetic measurements will reinforce the concepts taught in the lectures. This will provide students with the capability to understand and rationalise the products obtained in terms of reaction pathways.

CPR511 INSTRUMENTAL ANALYSIS
Aims to provide students with practical laboratory skills and theoretical knowledge to perform chemical analysis using analytical instruments such as gas and liquid chromatograph, ultra-violet visible, infra-red spectrophotometer, etc. It provides students with a capability for problem solving, independent thinking and innovation so that they can work effectively in research teams and/or in the industry on life science or chemical analysis.

CPR512 BASIC BIOCHEMISTRY
Aims to provide students with an understanding of the structure of water and biomolecules and water analysis and will also have the ability to generate structure of organic compounds. In addition, students will have developed an understanding of the organic reactions that key functional groups undergo (substitution, addition, condensation, hydrolysis, neutralisation, oxidation and reduction reactions). They will have a qualitative understanding of the physical properties (boiling points and solubilities) of principal organic compounds. The would also acquire the competency skills in crystallisation, melting point analysis and functional groups testing.

CPR513 MOLECULAR GENETICS
Aims to provide students with the theoretical knowledge and practical skills in molecular biology and genetic analysis. It also supports the overall course aims of developing problem solving skills in these areas of knowledge by encouraging students to analyse and solve problems in genetic and molecular biology involving convergent and divergent thinking. Students will learn the fundamentals of genetics, function of genes and the concepts and applications of recombinant DNA technology and the tools used in molecular biology.

CPR514 GENERAL ANATOMY AND PHYSIOLOGY
The subject is designed to introduce the structures and function of the various systems and organs of the human body. The students are given an overview of the basic concepts in human physiology in relation to the gross and microscopic anatomical structures of organs and how they function.

CPR515 FORENSIC SCIENCE
Aims to provide students with knowledge on the basic principles and skills for forensic investigations in chemistry and life sciences. The topics covered include chain of custody and crime scene investigation, arson and explosives. DNA and protein analysis of samples from crime scenes and paternity testing, toxic inorganic elements and organic compounds, drugs forensic as well as toxicology. Real-life case studies will be introduced into each topic and the students will apply their knowledge to these studies. In addition, the important mind-sets essential by all analysts will be introduced and their implications on the law and judgement in court. Students will also acquire the practical skills to analyse and characterise important chemicals encountered in forensic laboratories.

CPR516 MATERIALS FOR THE MODERN WORLD
Aims to provide broad-based and fundamental knowledge required to understand the conventional and advanced materials in terms of their structures, properties, testing methods, processing methods and applications so as to enable us to select the right materials to suit different needs.

CPR517 PETROCHEMICALS AND ITS APPLICATION
Aims to provide students with laboratory skills and the theoretical knowledge of petrochemistry and its applications. Detailed knowledge of the various processes to convert petrochemicals to basic building blocks followed by their conversion to useful common and specialty chemicals, as well as their importance to Singapore’s economy will be taught. In addition, the role of the specialty chemicals derived from petrochemicals will be covered. Students will be given an overview of the essential skills to determine the physical and chemical properties of petroleum products and petrochemicals.
Synopses

with the syntheses of organic and participants acquire the skills associated

The aims of this module are to help

TECHNIQUES

CP8604

Toxin Act. Health Act and the Biological Agents and

operations such as Workplace Safety and

taught. In addition, participants have to

of the four biosafety levels, routes of

safety planning; risk assessment; handling

in this module will serve as a foundation for the

acquisition of higher skills and knowledge in subsequent modules

CP8605

GOOD LABORATORY PRACTICES & MANAGEMENT

On completion of this module, participants will be equipped good laboratory practice and quality management skills to work effectively and manage daily laboratory operations. Participants will also develop capability in problem solving of economic and technical aspects of laboratory operations.

CP8606

APPLIED STATISTICS & QUALITY ASSURANCE

This module aims to provide an understanding of statistical concepts and apply skills and knowledge acquired in this module when they progress to subsequent modules.

CP8607

SPECTROSCOPY

This module aims to train participants to be competent in applying the theoretical knowledge learnt in separation science as well as demonstrating the mastery of skills in operating chromatography instrumentation by performing compound qualitative and quantitative analyses using various forms of chromatographic techniques such as GC, LC and IE.

Complementing the hands-on activities in this module shall be furnished with the learning of operating principles, calibration and optimisation process of each technique. Participants will be able to build upon the skills and knowledge acquired in this module when they progress to subsequent modules.

CP8608

ORGANIC CHEMISTRY – REACTION MECHANISMS

The module aims to give students the fundamental concepts of organic chemistry and its reaction mechanisms. Laboratory sessions on organic syntheses and kinetic measurements will reinforce the concepts taught in the lectures. This will provide participants with the capability to understand and rationalise the products obtained in terms of reaction pathways.

CP8610

ELECTROPHYSIOLOGY AND PACEMAKERS

Covers definitions, etiological evaluations, pathophysiology, clinical manifestation, risk factors, treatment, management and complications of various heart diseases.

CP8611

APPLICATIONS IN LABORATORY ANALYSIS

This laboratory-based module imparts participants with the knowledge and skills on the applications of chromatography and spectroscopy techniques in laboratory analyses. Relevant case studies from different sub-sectors of the chemical industry will be given to the participants where skills acquired on instrumental analyses will be reinforced. The module also covers the design of a project scope where the participants will execute during their On-Job-Training (OJ/T). Examples of a project scope will range from lab improvement to the optimisation of a lab procedure or work flow.

CP8612

ECHOCARDIOGRAPHY

Covers information on conventional and Doppler Echocardiography imaging techniques and illustrations of how they are used in the diagnosis of selected diseases of the heart.

CP8613

CLINICAL ATTACHMENT

Allows students to gain experience in a wide range of clinical specialties such as surgery, emergency medicine and general practice. Opportunities are available to learn and develop a range of practical skills related to the core areas of clinical practice.

CP8614

APPLIED CARDIAC ANATOMY AND PHYSIOLOGY

Aims to provide students with basic understanding of anatomy and physiology of the heart and the clinical relevance of this knowledge.

CP8615

GENERAL CARDIOLOGY AND CARDIAC DISORDERS I

Aims to provide students with definitions, etiologic evaluations, pathophysiology, clinical manifestation, risk factors, treatment, management and complications of various heart diseases.

CP8616

DIABETES

Covers information on Conventional and Doppler Echocardiography imaging techniques and illustrations of how they are used in the diagnosis of selected diseases of the heart.
Introduces students to the use of computers in industrial environment for Computer-Integrated Design of electronic circuits. Simulation and printed circuit boards and provides them the hands-on experience in using Electronic Design Automation systems for design of electronic circuits.

ET0405 ELECTRONIC DEVICES

Provides students with a fundamental understanding of the fundamental concepts of electronic components and devices. The module introduces students with the basic theory of electronic devices and circuits and provides them with the necessary knowledge and skills to perform basic circuit analysis and design. Students will be able to understand the operation and characteristics of electronic components and devices and be able to apply this knowledge to the design and implementation of electronic circuits and systems.

ET0406 CIRCUIT THEORY

Introduces students to the fundamentals of electrical engineering and the basic concepts of circuit theory and circuit analysis. The module covers the fundamentals of circuit analysis and the basic concepts of circuit theory and circuit analysis. Students will be able to understand the basic concepts of circuit theory and circuit analysis and be able to apply them to the design and analysis of electronic circuits and systems.

ET0407 SENSOR AND INSTRUMENTATION

Introduces students to the principles of sensor technology and the design and implementation of sensor systems. The module covers the fundamentals of sensor technology and the design and implementation of sensor systems. Students will be able to understand the basic concepts of sensor technology and be able to apply them to the design and implementation of sensor systems.

ET0408 ELECTROMECHANICAL DEVICES

Introduces electrical motors used to convert electrical power to mechanical power. The module covers the fundamentals of electrical motors and provides students with the necessary knowledge to understand their operation and characteristics. Students will be able to understand the basic concepts of electrical motors and be able to apply them to the design and implementation of electrical motor systems.

ET0409 COMPUTER INTERFACING

Introduces students to the principles of computer interfacing and the design and implementation of computer interfaces. The module covers the fundamentals of computer interfacing and the design and implementation of computer interfaces. Students will be able to understand the basic concepts of computer interfacing and be able to apply them to the design and implementation of computer interfaces.

ET0410 COMPUTER NETWORKING

Introduces students to the fundamentals of computer networking and the design and implementation of computer networks. The module covers the fundamentals of computer networking and the design and implementation of computer networks. Students will be able to understand the basic concepts of computer networking and be able to apply them to the design and implementation of computer networks.

ET0411 SERVER MANAGEMENT

Introduces students to the principles of server management and the design and implementation of server management systems. The module covers the fundamentals of server management and the design and implementation of server management systems. Students will be able to understand the basic concepts of server management and be able to apply them to the design and implementation of server management systems.

ET0412 STRUCTURED PROGRAMMING

Introduces students to the principles of programming and the design and implementation of programming languages. The module covers the fundamentals of programming and the design and implementation of programming languages. Students will be able to understand the basic concepts of programming and be able to apply them to the design and implementation of programming languages.

ET0413 NETWORKS AND PROTOCOLS

Introduces students to the concepts of computer networking and internetworking. The module covers the fundamentals of computer networking and internetworking. Students will be able to understand the basic concepts of computer networking and internetworking and be able to apply them to the design and implementation of computer networking and internetworking systems.

ET0414 IC DESIGN

Introduces students to the fundamentals of integrated circuit design and the design and implementation of integrated circuits. The module covers the fundamentals of integrated circuit design and the design and implementation of integrated circuits. Students will be able to understand the basic concepts of integrated circuit design and be able to apply them to the design and implementation of integrated circuits.

ET0415 WAFER FABRICATION

Introduces students to the fundamentals of wafer fabrication and the design and implementation of wafer fabrication processes. The module covers the fundamentals of wafer fabrication and the design and implementation of wafer fabrication processes. Students will be able to understand the basic concepts of wafer fabrication and be able to apply them to the design and implementation of wafer fabrication processes.

ET0416 QUALITY AND RELIABILITY

Introduces students to the fundamentals of quality and reliability in the design and implementation of electronic systems. The module covers the fundamentals of quality and reliability in the design and implementation of electronic systems. Students will be able to understand the basic concepts of quality and reliability and be able to apply them to the design and implementation of electronic systems.

ET0417 AUTO-CAD

Introduces students to the fundamentals of AutoCAD software and the design and implementation of AutoCAD software. The module covers the fundamentals of AutoCAD software and the design and implementation of AutoCAD software. Students will be able to understand the basic concepts of AutoCAD software and be able to apply them to the design and implementation of AutoCAD software.
Synopses

ET0153 SATELLITE AND OPTICAL COMMUNICATION

ET0156 SYSTEMS AND CONTROL

ET0164 AVIONIC SYSTEMS

ET0172 INTERACTION DESIGN TECHNOLOGY I

ET0173 INTERACTION DESIGN TECHNOLOGY II

ET0180 BIOMEDICAL EQUIPMENT & PRACTICES

ET0181 FUNDAMENTALS OF INNOVATION DEVELOPMENT

ET0184 INTELLIGENT I/O AND SIGNAL PROCESSING

ET0245 NETWORK SECURITY

ET0246 WIRELESS NETWORK AND SECURITY

ET0247 FIREWALL AND INTRUSION PREVENTION

ET0248 NETWORK ANALYSIS AND FORENSICS

ET0249 PROJECT OR DISSERTATION

ET0250 COMPUTER PROGRAMMING WITH APPLICATIONS

ET0251 COMPUTER PROGRAMMING II

ET0252 NETWORK SECURITY

ET0253 DIGITAL AND ADVANCED CONTROL

ET0254 CONTROL SYSTEMS PROJECT

ET0301 FUNDAMENTALS OF INNOVATION DEVELOPMENT

ET0302 DIGITAL CONTROL OF DRIVES

ET0324 AIRCRAFT SYSTEMS PROJECT

ET0325 DIGITAL CONTROL OF DRIVES

ET0326 DIGITAL CONTROL OF DRIVES

ET0327 DIGITAL CONTROL OF DRIVES

ET0328 DIGITAL CONTROL OF DRIVES

ET0329 DIGITAL CONTROL OF DRIVES

ET0330 DIGITAL CONTROL OF DRIVES

ET0331 INTELLIGENT INSTRUMENTATION AND MEASUREMENT SYSTEMS

ET0332 DIGITAL CONTROL OF DRIVES

ET0333 DIGITAL CONTROL OF DRIVES

ET0334 DIGITAL CONTROL OF DRIVES

ET0335 DIGITAL CONTROL OF DRIVES

ET0336 DIGITAL CONTROL OF DRIVES

ET0337 DIGITAL CONTROL OF DRIVES

ET0338 DIGITAL CONTROL OF DRIVES

ET0339 DIGITAL CONTROL OF DRIVES

ET0340 DIGITAL CONTROL OF DRIVES

ET0341 DIGITAL CONTROL OF DRIVES

ET0342 DIGITAL CONTROL OF DRIVES

ET0343 DIGITAL CONTROL OF DRIVES

ET0344 DIGITAL CONTROL OF DRIVES

ET0345 DIGITAL CONTROL OF DRIVES

ET0346 DIGITAL CONTROL OF DRIVES

ET0347 DIGITAL CONTROL OF DRIVES

ET0348 DIGITAL CONTROL OF DRIVES

ET0349 PROJECT

ET0350 AUTOMATION AND PROGRAMMABLE CONTROLLER APPLICATIONS

ET0351 PROJECT

ET0352 DIGITAL CONTROL OF DRIVES

ET0353 DIGITAL CONTROL OF DRIVES

ET0354 DIGITAL CONTROL OF DRIVES

ET0355 DIGITAL CONTROL OF DRIVES

ET0356 DIGITAL CONTROL OF DRIVES

ET0357 DIGITAL CONTROL OF DRIVES

ET0358 DIGITAL CONTROL OF DRIVES

ET0359 DIGITAL CONTROL OF DRIVES

ET0360 DIGITAL CONTROL OF DRIVES

ET0361 DIGITAL CONTROL OF DRIVES

ET0362 DIGITAL CONTROL OF DRIVES

ET0363 DIGITAL CONTROL OF DRIVES

ET0364 DIGITAL CONTROL OF DRIVES

ET0365 DIGITAL CONTROL OF DRIVES

ET0366 DIGITAL CONTROL OF DRIVES

ET0367 DIGITAL CONTROL OF DRIVES

ET0368 DIGITAL CONTROL OF DRIVES

ET0369 DIGITAL CONTROL OF DRIVES

ET0370 DIGITAL CONTROL OF DRIVES

ET0371 DIGITAL CONTROL OF DRIVES

ET0372 DIGITAL CONTROL OF DRIVES

ET0373 DIGITAL CONTROL OF DRIVES

ET0374 DIGITAL CONTROL OF DRIVES

ET0375 DIGITAL CONTROL OF DRIVES

ET0376 DIGITAL CONTROL OF DRIVES

ET0377 DIGITAL CONTROL OF DRIVES

ET0378 DIGITAL CONTROL OF DRIVES

ET0379 DIGITAL CONTROL OF DRIVES

ET0380 DIGITAL CONTROL OF DRIVES

ET0381 DIGITAL CONTROL OF DRIVES

ET0382 DIGITAL CONTROL OF DRIVES

ET0383 DIGITAL CONTROL OF DRIVES

ET0384 DIGITAL CONTROL OF DRIVES

ET0385 DIGITAL CONTROL OF DRIVES

ET0386 DIGITAL CONTROL OF DRIVES

ET0387 DIGITAL CONTROL OF DRIVES

ET0388 DIGITAL CONTROL OF DRIVES

ET0389 DIGITAL CONTROL OF DRIVES

ET0390 DIGITAL CONTROL OF DRIVES

ET0391 DIGITAL CONTROL OF DRIVES

ET0392 DIGITAL CONTROL OF DRIVES

ET0393 DIGITAL CONTROL OF DRIVES

ET0394 DIGITAL CONTROL OF DRIVES

ET0395 DIGITAL CONTROL OF DRIVES

ET0396 DIGITAL CONTROL OF DRIVES

ET0397 DIGITAL CONTROL OF DRIVES

ET0398 DIGITAL CONTROL OF DRIVES

ET0399 DIGITAL CONTROL OF DRIVES

ET0400 DIGITAL CONTROL OF DRIVES

ET0401 DIGITAL CONTROL OF DRIVES

ET0402 DIGITAL CONTROL OF DRIVES

ET0403 DIGITAL CONTROL OF DRIVES

ET0404 DIGITAL CONTROL OF DRIVES

ET0405 DIGITAL CONTROL OF DRIVES

ET0406 DIGITAL CONTROL OF DRIVES

ET0407 DIGITAL CONTROL OF DRIVES

ET0408 DIGITAL CONTROL OF DRIVES

ET0409 DIGITAL CONTROL OF DRIVES

ET0410 DIGITAL CONTROL OF DRIVES

ET0411 DIGITAL CONTROL OF DRIVES

ET0412 DIGITAL CONTROL OF DRIVES

ET0413 DIGITAL CONTROL OF DRIVES

ET0414 DIGITAL CONTROL OF DRIVES

ET0415 DIGITAL CONTROL OF DRIVES

ET0416 DIGITAL CONTROL OF DRIVES

ET0417 DIGITAL CONTROL OF DRIVES

ET0418 DIGITAL CONTROL OF DRIVES

ET0419 DIGITAL CONTROL OF DRIVES

ET0420 DIGITAL CONTROL OF DRIVES

ET0421 DIGITAL CONTROL OF DRIVES

ET0422 DIGITAL CONTROL OF DRIVES

ET0423 DIGITAL CONTROL OF DRIVES

ET0424 DIGITAL CONTROL OF DRIVES

ET0425 DIGITAL CONTROL OF DRIVES

ET0426 DIGITAL CONTROL OF DRIVES

ET0427 DIGITAL CONTROL OF DRIVES

ET0428 DIGITAL CONTROL OF DRIVES

ET0429 DIGITAL CONTROL OF DRIVES

ET0430 DIGITAL CONTROL OF DRIVES

ET0431 DIGITAL CONTROL OF DRIVES

ET0432 DIGITAL CONTROL OF DRIVES

ET0433 DIGITAL CONTROL OF DRIVES

ET0434 DIGITAL CONTROL OF DRIVES

ET0435 DIGITAL CONTROL OF DRIVES

ET0436 DIGITAL CONTROL OF DRIVES

ET0437 DIGITAL CONTROL OF DRIVES

ET0438 DIGITAL CONTROL OF DRIVES

ET0439 DIGITAL CONTROL OF DRIVES

ET0440 DIGITAL CONTROL OF DRIVES

ET0441 DIGITAL CONTROL OF DRIVES

ET0442 DIGITAL CONTROL OF DRIVES

ET0443 DIGITAL CONTROL OF DRIVES

ET0444 DIGITAL CONTROL OF DRIVES

ET0445 DIGITAL CONTROL OF DRIVES

ET0446 DIGITAL CONTROL OF DRIVES

ET0447 DIGITAL CONTROL OF DRIVES

ET0448 DIGITAL CONTROL OF DRIVES

ET0449 DIGITAL CONTROL OF DRIVES

ET0450 DIGITAL CONTROL OF DRIVES

ET0451 DIGITAL CONTROL OF DRIVES

ET0452 DIGITAL CONTROL OF DRIVES

ET0453 DIGITAL CONTROL OF DRIVES

ET0454 DIGITAL CONTROL OF DRIVES

ET0455 DIGITAL CONTROL OF DRIVES

ET0456 DIGITAL CONTROL OF DRIVES

ET0457 DIGITAL CONTROL OF DRIVES

ET0458 DIGITAL CONTROL OF DRIVES

ET0459 DIGITAL CONTROL OF DRIVES

ET0460 DIGITAL CONTROL OF DRIVES

ET0461 DIGITAL CONTROL OF DRIVES

ET0462 DIGITAL CONTROL OF DRIVES

ET0463 DIGITAL CONTROL OF DRIVES

ET0464 DIGITAL CONTROL OF DRIVES

ET0465 DIGITAL CONTROL OF DRIVES

ET0466 DIGITAL CONTROL OF DRIVES

ET0467 DIGITAL CONTROL OF DRIVES

ET0468 DIGITAL CONTROL OF DRIVES

ET0469 DIGITAL CONTROL OF DRIVES

ET0470 DIGITAL CONTROL OF DRIVES

ET0471 DIGITAL CONTROL OF DRIVES

ET0472 DIGITAL CONTROL OF DRIVES

ET0473 DIGITAL CONTROL OF DRIVES

ET0474 DIGITAL CONTROL OF DRIVES

ET0475 DIGITAL CONTROL OF DRIVES

ET0476 DIGITAL CONTROL OF DRIVES

ET0477 DIGITAL CONTROL OF DRIVES

ET0478 DIGITAL CONTROL OF DRIVES

ET0479 DIGITAL CONTROL OF DRIVES

ET0480 DIGITAL CONTROL OF DRIVES

ET0481 DIGITAL CONTROL OF DRIVES

ET0482 DIGITAL CONTROL OF DRIVES

ET0483 DIGITAL CONTROL OF DRIVES

ET0484 DIGITAL CONTROL OF DRIVES

ET0485 DIGITAL CONTROL OF DRIVES

ET0486 DIGITAL CONTROL OF DRIVES

ET0487 DIGITAL CONTROL OF DRIVES

ET0488 DIGITAL CONTROL OF DRIVES

ET0489 DIGITAL CONTROL OF DRIVES

ET0490 DIGITAL CONTROL OF DRIVES

ET0491 DIGITAL CONTROL OF DRIVES

ET0492 DIGITAL CONTROL OF DRIVES

ET0493 DIGITAL CONTROL OF DRIVES

ET0494 DIGITAL CONTROL OF DRIVES

ET0495 DIGITAL CONTROL OF DRIVES

ET0496 DIGITAL CONTROL OF DRIVES

ET0497 DIGITAL CONTROL OF DRIVES
**AIRCRAFT ELECTRICAL**
This module covers the fundamentals of electricity generation and network of components, circuitry for later, distribute, utilise and store electrical energy in aircraft. These includes different types of DC sources, particularly the primary and secondary cells of aircraft batteries. DC motor and generator construction and operation principles. Topics on single and multi-phase AC and DC power generators, transformers and motors. Projects are also illustrated. Upon completion, the fundamentals, the module introduces topics such as electrical power converters, conditioners and protections, aircraft flight controllers including fly-by-wire, aircraft internal and external lightings, ice and rain protection systems, aircraft fire protection and extinguishing systems, landing gears operations, aircraft ignition, heating systems, electrostatic protection and electrical bonding techniques used in aircraft.

**AIRCRAFT COMMUNICATION & NAVIGATION**
Introduction of principles and techniques used in aircraft communication systems on propagation of radio waves, RF signal attenuation by atmospheric, receivers, filters, band-limiting modulations and Superhet radio receivers. This module covers aircraft systems such as the aircraft emergency locator transmitter, VHF/HF communications systems. VOR/ILS systems, Doppler navigation system, microwave landing system, automatic direction finding system, area navigation, global position system. In addition, it covers ADS-B and collision avoidance system (TCAS), flight management systems, and weather avoidance radar and radar altimeter. Also taught in this module are the principles and methods for minimum the effect of conductors and related electromagnetic interference, methods used to minimise the effects of lightning strikes and static on aircraft and their components and related safety issues. Basics of fibre optic data transmission, multiplexing circuits and audio systems are also covered.

**AIRCRAFT INSTRUMENTS**
Provides a good understanding of terminologies and basic concepts of aircraft instrument devices and systems such as altimeters, vertical speed indicators, mach meters and other measuring and indicating systems. The module also covers the working principles and functions of aircraft systems such as automatic flight control systems, autopilot navigations, audio, radio, landing systems, electronic display systems such as EFIS, ECAM and EMA, inertial navigation systems, and safety and warning systems such as ground proximity warning systems and instrument warning systems. The operation of digital data busses in aircraft systems such as ARINC and other specifications is also covered.

**HUMAN FACTORS & QUALITY SYSTEMS**
This module highlights the importance and need for human factors training in aircraft maintenance and inspection. It discusses the influence of human behaviour and performance on safety and efficiency. It provides fundamental knowledge in quality and reliability from product design to manufacturing, including topics like quality concepts, statistical distribution and analysis of accuracy precision. SPC, SPC, control charts, reliability concepts of MTTF/MTBF, failure rates. Students will also learn the use of software like StatGraphics for analysis. There will be assignments on TQM, ISO9000: six sigma accelerated testing and environmental stress testing.

**AIRCRAFT ELECTRONICS**
Provides students with the basics in electronics and servomechanism components that serves as building blocks for aircraft control systems. These building blocks will be used to introduce feedback control system concepts and terminologies to students. Upon completion of this module, the students should be able to understand the elements of aircraft servomechanisms, feedback system and its performance.

**DATA COMMUNICATION SYSTEMS**
Provides an introduction to data communications and an understanding of concepts and techniques used in the transfer of information. Topics include data transmission basics, synchronous and asynchronous transmission, transmission media, data communication systems and devices, as well as an introduction to networks.

**NETWORK VULNERABILITIES AND SECURITY TOOLS**
Provides students with the basics of networking and ethical hacking skills to identify major types of system and network vulnerabilities. Students will also be taught countermeasures against these threats through the use of security tools and best practices used to mitigate the effect of attacks and malicious codes.

**NETWORK SECURITY SYSTEMS**
Teaches students the security protocols and techniques in securing data transmission, such as Symmetric and Asymmetric Cryptography, PKI system, PGP, SSL/MM and user authentication systems. The students also learn about security in network devices and server systems. Topics covered include Secure Socket Layer (SSL)/ Transport Layer Security (TLS), HTTPS protocol, Secure File Transfer Protocol, and security baseline practices for server systems. Students will gain hands-on experience in seeing server web services, setting up RADIUS server for authentication, and securing wireless network using techniques of WPA and PEAP.

**MOBILE COMMUNICATION SYSTEMS**
This module covers the fundamentals of mobile communications, including signals and signal transmission, radio transmission and propagation, multiple access, and digital modulation techniques. It also covers the architecture and operation of GSM, UMTS (3G), LTE (4G) mobile communication systems, and Fixed-mobile convergence.

**MOBILE APPLICATIONS DEVELOPMENT**
Provides students with the skills to develop and implement games or applications for mobile phones. Students will be introduced to open-source software tools available for programme development, key concepts in mobile programming, user interface classes, sensors and local data storage. By the end of the module, students should be able to conceptualise and complete a mobile game or application.

**FIREWALL TECHNOLOGIES**
This module introduces the framework design and the technologies for securing the perimeter of a network. Security features of port scans and other tools and firewalls) including various filtering techniques (e.g. packet filtering, Proxy filtering and Stateful filtering) are covered. Other topics include virtual private network, intrusion detection and prevention, disaster recovery and business continuity. Students will also learn in the laboratory session how to configure Cisco routers and ASA (Adaptive Security Appliance) for De-Militarised Zone, Virtual Private Network, and authorisation.

**DIGITAL MEDIA CODING**
Aims to provide students with the knowledge of the characteristics of multimedia signals and equip them with the understanding of the concept of image, video and audio compression and their applications.

**BIOMEDICAL SIGNAL PROCESSING AND DESIGN AND APPLICATIONS**
Provides an understanding of signal processing and analysis used in biomedical applications. Topics will cover data acquisition and analysis, signal processing (DSP) principles such as sampling, quantisation coding, z-transform, FIR filtering and DFT. Practical experiments will include digitising, processing and analysing the continuous and discreet signals such as ECG, EEG, EMG and other ‘in-vivo’ signals.

**BIOMEDICAL EQUIPMENT AND PRACTICES**
The objective of this module is to familiarise the student with various medical equipment and techniques used in medical centres. Other topics covered in this module are patient management and safety. Students will also learn the concepts of data mining and apply these concepts in medical imaging. Other topics include the introduction to medical telemetry systems and telemedicine concepts.

**DATA STRUCTURES AND ALGORITHMS**
Provides a basic theoretical understanding and practice in data structures and algorithms commonly encountered in computer programming. Students will receive further understanding in basic data types and be introduced to the concepts of data structures and algorithms. Topics covered in this module include the use of some STL classes associated with common data structures and algorithms.
ET0706 OBJECT-ORIENTED PROGRAMMING
Equips students with knowledge of basic object-oriented programming concepts. Students will be able to develop software with modularity and reusability using object-oriented approach, event-driven programming, management, troubleshooting, and design. More robust application program using exception handling.

ET0708 MICROPROCESSOR SYSTEMS & PROGRAMMING
Provides students with knowledge of how microprocessors work and are operated. Topics include the computer architecture, memory interfacing, device interfacing, peripheral support and development of microprocessor systems.

ET0709 NETWORK ANALYSIS AND FORENSICS
Teaches the use of Network Analysis and Packet Capture tools to analyse data flowing through a network. Students will learn how to use analysis tools to perform forensic tests to determine the nature of any security breaches and exploits. The module also uses case studies to determine the nature of different exploits used by hackers on the Internet.

ET0745 DATA CENTRE MANAGEMENT
This module looks at the planning, configuration and resource of resources that make up a Data Centre. Students are taught how to manage, monitor and conserve energy using Green Information Technology (IT) methodologies.

ET0715 INTERNET SECURITY
Provides students with the fundamental concepts on the need for IT Security. The world is awakening to the fact that even though network and OS-level security might be tightly configured, the application layer still provides a potential avenue of entry for intruders. Students will be able to identify the vulnerabilities of web applications and recommend appropriate defences to be taken to counteract and improve web application security.

ET0716 LAN SWITCHING AND WIRELESS
Provides students with a complete foundation in Wireless Networking and LAN Switching. Wireless Networking covers basic RF theory, hardware installation, configuration and management, troubleshooting, security, and site surveying. LAN Switching covers basic switch concepts and configuration, virtual LANs, VLAN protocols and Inter-VLAN Routing.

ET0718 WIDE AREA NETWORKS
Discusses the WAN technologies and network services required in enterprise networks. This module demonstrates how to select appropriate devices and technologies to connect small- to medium-sized business networks. Students learn how to implement and configure common data link protocols and how to apply WAN security concepts, principles of traffic control access and addressing services. Students will also learn how to detect, troubleshoot, and correct common enterprise network failure issues.

ET0719 SYSTEM VIRTUALISATION
Introduces the concepts and techniques of implementing CPU and data virtualisation in an effort to maximise the resource utilisation and to conserve energy. Practical implementation will cover virtualisation in an effort to illustrate concepts taught.

ET0721 CLIENT-SERVER APPLICATIONS DEVELOPMENT
Aims to teach students the basic features of the client and server side programming. Students will also learn practical skills in database programming using Structured Query Language (SQL). Students will develop a professional client/server application integrating database application work and/or mobile devices for Internet applications.

ET0722 CLOUD COMPUTING SERVICES
Teaches students the basic principles of Cloud Computing differentiating the use of cloud systems, identification of potential benefits and risks as well as the ability to develop a working knowledge of Cloud computing and its framework that support cloud computing and how to examine and recommend applications for the cloud.

ET0730 NETWORK FUNDAMENTALS
This module provides a general overview of computer networking. It provides a general introduction to networking terminology, concepts, devices, functionality and applications and standards required for computer networking. Students will learn to build simple LANs, perform basic network and service configurations, and implement IP addressing schemes.

ET0731 INTERNET OF THINGS (IOT) SECURITY
Students will learn the prime requirements for a secured IoT set-up. The module will provide a complete exposure to security concerns of an IoT setup by uncovering the present challenges in standardisation of data routing, data integrity, device supervision, IoT Integration, information storage, IoT performance, and security solutions. This module will also provide students with practical activities to implement performance and security requirements for a secured IoT set-up.

ET0732 MACHINE LEARNING & ARTIFICIAL INTELLIGENCE
This module aims to equip students with understanding of machine learning and artificial intelligence. Students will cover the theory of machine learning and artificial intelligence, and their potential applications. Students will learn about machine learning methods and tools. They will then apply the knowledge through hands-on experience building machine learning system in mini projects.

ET0904 PHYSICS
The module aims to provide students with an applied approach in learning fundamental principles of physical sciences as well as the utilization of scientific principles in practical or technological systems. Practical examples will be drawn from autonomous and/or electric car. The applied approach aims to strengthen and enrich engineering competence through the understanding of fundamental physics principles. The module will cover topics on applied mechanics, thermodynamics, physics, optics, wave motion, electromagnetic principles and batteries.

ET0908 WAFER FABRICATION FUNDAMENTALS
The aim of the module is to provide students with the fundamental knowledge and understanding of wafer fabrication technology and its relation to the entire semiconductor & electronic devices and appliances industry supply chain, including IC Design, mask production, Integrated Circuit (IC), MEMS, sensors and photonics devices. It will include processes of oxidation, photolithography etching, thin film deposition techniques using physical vapour deposition, chemical vapour deposition (CVD) and doping techniques like diffusion and ion implantation. Students will also learn micro contamination control, electrostatic discharge (ESD) control and vacuum technology basics.

ET0909 MEMS AND MICROSYSTEMS
This module starts with an overview of MEMS and Microsystems and the various micromachining techniques. The Microsystems fabrication processes, materials and the various applications are covered. A bulk micro-machined pressure sensor is used as an example in the designing and fabrication of a MEMS device.

ET0916 FIELDBUS TECHNOLOGY
Provides students with the knowledge to connect instruments and field devices of an automation system to the control using internationally recognised communication standards. Fieldbus is an industrial network system for real-time distributed control. The techniques covered are Modbus Foundation Fieldbus and PROFIBUS. Strong emphasis is placed on application of these technologies in the area of process and discrete manufacturing industries.

ET0919 PLC APPLICATIONS
This module is a PLC-based automation project in which students learn step-by-step approaches of implementing an automation system. It involves the study of programmable logic controllers (PLC) using appropriate I/Os. I/O interfacing and power rating considerations, programme testing and system troubleshooting. Students will learn the full process of implementing a PLC-based project.

ET0922 INTELLIGENT ROBOTICS SYSTEMS
Aims to provide an insight into the field of robotics as well as a hands-on approach by introducing foundational and practical topics on robotic systems within a multi-disciplinary framework. It also aims to offer a practical point of view into how to design systems that close the perception-process-action loop in both simulation and real mobile robots applied to industry and service domains.

ET0932 MULTI-DISCIPLINARY PROJECT
Aims to allow students to integrate and apply knowledge over the Web and other modules in a context of a multi-disciplinary project. Students will carry out research and development in an environment that encourages team work and communication with students from other modules. They will manage their time and project budget. Students will be required to keep a portfolio, write reports, design research and project management and experience the project management and demonstrate their project to different audiences through a 'show-and-tell'.
ET0904 RAPID TRANSIT SYSTEM
Provides students with knowledge and application skills in identifying the main features and key components of rapid transit systems within a rapid transit environment. The module covers history of rapid transit system, operating philosophy of rail operations, main functions and features of different systems within the rapid transit environment, and the general design aspects. This module introduces the student to the different methods and technologies to programme and control rapid transit systems. Students learn to be effective in the design of controllers for robotic systems. The module offers a practical point of view into how to design systems that close the perception-process-action loop in both simulation and real mobile robots applied to industry and service domains.

ET0925 RAPID TRANSIT SIGNALLING SYSTEM
Provides students with knowledge of the principle of train control and supervision in an urban rail transit signalling systems. The module covers roles and importance of the Signalling system in Railway Operation, Signalling System configuration, architecture, integration with other systems, Signal Interlocking System, Train Supervision System and Train Control System. Students will have a chance to demonstrate their knowledge of the module by designing and implementing a railway model as their graded assignment.

ET0926 IMMERSION PROGRAMME
The Rapid Transit Technology immersion programme is a 1-week attachment at an institution offering rapid transit training programme. The programme allows students to experience the real rapid transit work environment that requires students to utilise the fundamentals that they have learnt in the classroom. There will be great opportunity to interact with the rapid transit professionals and discover in depth the signalling, fare systems, communications and integrated supervisory control systems during the learning process. The immersion programme will be graded. There are two component projects and a final report and presentation. Practical performance will be assessed by the hosting institution. The final report and presentation on learning experience will be assessed by SP.

ET0927 ROBOTICS TECHNOLOGY
This module aims to provide students with an insight of the latest trends and applications in robotics technology as well as a hands-on approach by introducing foundations and practical on key topics of robotics systems within a multi-disciplinary framework. This module introduces the student to the different methods and technologies to programme and control robotic systems. Students learn to be effective in the design of controllers for robotic systems. The module offers a practical point of view into how to design systems that close the perception-process-action loop in both simulation and real mobile robots applied to industry and service domains.

ET0928 SMART SENSORS AND ACTUATORS
The aim of this module is to provide students with a broad knowledge of various types of smart sensors and a deep understanding of the principle & application of smart sensors & actuators in automation and process industries. Application of smart sensors in providing increased automation, improved communication and monitoring along with self-diagnosis and new levels of analysis to provide a truly productive future will be covered in the module. This module covers specific topics overview and fundamentals of sensors and actuator system, principle and concept of smart sensors, operating principles of actuators, industrial process instruments, data sensing and analysis, signal conditioning techniques and finally smart sensors application in advanced manufacturing.

ET0929 DIGITAL MANUFACTURING TECHNOLOGY
The module covers various components and technologies in Advanced Manufacturing (Industry 4.0). Topics include networking of Automation equipment using open communication standards to provide connectivity between machines and connectivity to Information Technology services. Practical sessions will include configuring and programming a PLC system for automation tasks with web based and mobile apps information services. Condition monitoring with wireless sensors network for predictive maintenance will also be covered.

ET0930 PRINCIPLES OF COMMUNICATION
This module covers the principles and techniques used in digital communication systems. Foundation topics on signals and spectrum and filters are first touched on. Later topics covered include signal sampling, digital modulation and control robotic systems. Students learn to be effective in the design of controllers for robotic systems. The module offers a practical point of view into how to design systems that close the perception-process-action loop in both simulation and real mobile robots applied to industry and service domains.

ET0931 DIGITAL ELECTRONICS I
Introduces students to the knowledge, understanding and design techniques necessary, to enable them to design simple combinational circuits using commercial MSI and MSI integrated circuits. Additional topics covered include introduction to simple sequential logic circuits such as flip-flops and mono-stables.

ET0932 DIGITAL ELECTRONICS II
Builds on previous material covered earlier with advanced topics such as adders, multiplexers/demultiplexers, decoders/ encoders, counters and shift registers and some application examples of these circuits.

ET0933 PRINCIPLES OF ELECTRICAL AND ELECTRONIC ENGINEERING I
This module covers the fundamental concepts of electricity. Basic laws and theorems which govern the operation of an electrical circuit are explained with illustrations. Understanding and application of electrical phenomena are further enhanced using circuit simulation on worked examples and tutorial problems and via hands-on sessions. Topics covered include basic scientific notation, engineering notation, metric prefixes, basic elements of an electrical circuit, definitions of energy and power, power sources, measuring instruments, DC and AC concepts, simple series and parallel networks, electromagnetics, induction, inductors, transformers, capacitor and capacitance, characteristics of inductor and capacitor in DC, Kirchoff’s Voltage and Current Laws, Current and Voltage Divider Rules and Superposition Theorem.

ET0934 PRINCIPLES OF ELECTRICAL AND ELECTRONIC ENGINEERING II
Extends the basic concepts onto other electrical and electronic devices. Topics covered include: Semiconductor physics, semiconductor devices such as diodes, special diodes and bipolar transistors, transistors such as thermostats, and application of operational amplifiers, complex numbers and concepts of phasors: phasor angle, phasor diagrams, reactances, impedances, susceptances and admittances. Upon completion, this module consolidates students’ foundation of the electrical and electronic engineering.

ET0935 INTRODUCTION TO ENGINEERING I
This practical-based module aims to promote interest in engineering by introducing the interdisciplinary nature of engineering systems and their manufacturing processes to the students. Appreciation on the business aspect of what is required to bring a product to market will also be taught. In the process, students will also be trained to operate various commonly available workshop machine tools and electronic instruments. Students will have opportunities to develop their thinking skills, problem solving skills and interpersonal skills such as teamwork and communications.

ET0936 MICROCONTROLLER APPLICATIONS
Introduces the use of microcontrollers in a range of system applications. Students are taught how a microcontroller works, how to program it, and the use of microcontroller. In addition, students will learn basic analogue and digital support circuitry, sensors and actuators/dispaly required for a microcontroller based application. This module allows students to develop a project that involves the use of microcontroller system with sensors and output devices.

ET0937 FINAL YEAR PROJECT
Provides a platform where students can put into practical what they have learnt in the Year 1 technical modules. Students design, test and build several practical and interesting projects and in the process learn essential skills like milling PCBs, laser cutting, 3-D printing, circuit simulation, PCB layout planning and fabrication, strip-board fabricating, soldering, circuit assembly and troubleshooting. Projects are designed to integrate theory learnt from different modules. To support the CDIO initiative, teamwork, creative and critical thinking and presentation skills are emphasised in this module.

ET0938 ENGINEERING DESIGN
This module introduces students to design principles and enables them to put electrical and mechanical engineering theory and knowledge into practice. Students work in teams to design & build engineering artefacts, take inspiration from natural phenomena. The module material follows a main theme such as water transport optics etc. Students design and build projects that involve or exploit properties of the main theme and can also address issues related to that theme. In the case of water, for example, various aspects such as water quality, filtering, hydraulics and hydroelectricity can be investigated through demonstration projects that exploit the properties of water such as buoyancy, pressure, cooling etc.

ET0939/2/0 INTERNSHIP PROJECT
Provides students with the opportunity to be innovative, creative and to be responsible for selecting, formulating, planning, executing and reporting on a challenging piece of work that could provide a solution to an engineering problem. The module also aims to provide students with the opportunity to apply and integrate the knowledge and skills acquired during their polytechnic study and internship.

ET1010 SMART GRID AND ENERGY STORAGE
Aims to equip students with the knowledge of smart grid and energy storage and the skills of applying the smart grid technology. It is focused on principles, operations and management of a smart grid which deploys modern communication networking infrastructure and advanced automation technologies to integrate different energy generations (conventional and renewable) to the grid, provides energy monitoring, control and management for the utility and consumer alike and ensure more reliable and safer energy supply.

ET1011 ENERGY MANAGEMENT AND AUDITING
Aims to impart participants with the knowledge of various levels of Energy Audit, perform energy performance analysis, prepare and provide recommendation and audit report. Students will be introduced to the Energy Market within Singapore and the basic concepts of Energy Management System (ISO 50001:EnMS). The fundamental knowledge to carry out Energy Economic analysis and cost prediction for energy saving assessment and application of Measurement and Verifications (MV&M) will be shared through various case studies and/or application examples.
ET916 INTEGRATED BUILDING ENERGY MANAGEMENT SYSTEM
Provides thorough understanding of its relevance to lighting, motor driven system and integrated building management system. The lighting segment covers the design and selection of energy efficient lighting in industrial and office buildings. The fundamental concept and application of energy management system will be discussed. The module is also designed to provide students with a good working knowledge of the different applications of modern integrated building management system. Application areas will include air conditioning systems, fire detection and alarm systems and security systems.

ET917 SOLAR PHOTOVOLTAIC SYSTEM DESIGN
Equip students with the knowledge from different areas of solar cells to solar module. Designing, installing and maintaining a standalone and a grid-tied PV system will also be taught. The module will cover issues of load calculation, battery selection, calculation of PV power, capacity charger controller and inverter selection, site selection system, installation, monitoring and analysing PV system performance, estimating output from PV system and environmental impact.

ET920 ELECTRICAL ENGINEERING PRINCIPLES
Provides students with an understanding of basic electrical engineering principles. Students will apply the knowledge gained in hands-on lab sessions, with the proper use of instruments for measurements. The module covers basic electrical concepts such as electrical charge, current, voltage, power, energy, Ohm’s Law, series-parallel circuits, Kirchhoff’s Laws, electromagnetic, single phase AC Theory, 3-phase power and effects of resistor, capacitor and inductor in AC circuits, including operation of single-phase transformer.

ET921 ELECTRONIC ENGINEERING CONCEPTS
Cover basic concepts of fundamental electronics starting from number systems used in digital electronics. Basic logic gates, combinatorial logic circuits, flip-flops, binary counters and interfacing digital circuits to basic analogue electronics. Upon completion of this module, students should be able to apply fundamental electronic techniques in electronic circuit design and analysis.

ET922 FUNDAMENTALS OF COMPUTER AND INFORMATION SYSTEMS
Introduces students to the world of computers and information technology. Students will find out about the different computer hardware platforms and their uses in business and industrial applications. They will learn about the structure of a computer, how data is collected and processed, storage requirements as well as basic computer networking. Students will also be shown how users and the environment interact with computers, the different types of operating systems and application software currently used in industry and application. The module also covers the impact of computers on society by looking at ethics, privacy and information systems.

ET925 WIRELESS TECHNOLOGY APPLICATIONS
Students will acquire knowledge of commonly used wireless technology that enhances or improves our daily lives. They will learn about the basic features and use of wireless technology such as RFID, Wi-Fi, Bluetooth, WiMAX, Zigbee and Mobile and Internet communications such as 3G, 3.5G and LTE 4G. Applications that are related but not limited to entertainment, leisure activities, sports for individual and community users as well as ergonomic aspect of user interface will be considered.

ET926 ENGINEERING DESIGN AND BUSINESS PROJECT
Develops students’ entrepreneurial mindset by linking engineering products/services with business viabilities. Students will use design thinking methodology to approach their work and ethnography to gain insight to them. At the end of this module, they will produce prototypes to demonstrate their business ideas.

ET927 ENGINEERING PROJECTS FOR ENTREPRENEURS
This module builds on the integrated engineering & business knowledge and skills acquired from the earlier modules of the course and provides students the learning platform to explore opportunities from existing and emerging technologies by implementing a product that can be developed into a viable business. Students will learn to create value propositions, assess risks and develop project plans as an integral part of their project. This will equip them with the entrepreneurial mind-set and attitude to bring their projects to the next level.

ET940 ENGINEERING SYSTEM DESIGN
This project based module requires students to implement a new engineering project. It covers modern tools and methods for implementation. Tools include prototype, user interface, design and implementation. Students need to consider user feedback, user experience and also other commercial aspects of system development.

ET943 ELECTRICAL CONTROL SYSTEM
This module covers the control system design and operation for different types of land vehicles. Topics include Information Management System, Event Recorder, and auxiliary electrical equipment.

ET944 ELECTRICAL POWER SYSTEM
This module covers the basic operating principle of Electrical Power Supply system in Electric Vehicles and for a Multi-Rapid Transit (MRT) system. The topics covered include DC/DC Converter, PWM Controller, DC and AC motors and Batteries.

ET948 SMART CITY SYSTEMS DESIGN
This module aims to cover pervasive connectivity and architecture needed to deploy smart nation and smart city ecosystems. Topics covered include networking technologies and protocols, IoT/M2M architecture and infrastructure, network cloud and systems security. Students will apply knowledge gained and explore into various case studies and examples of smart city application and ecosystem worldwide. Government’s Smart Nation and digital government goals for wireless sensor network as well as Smart Nation OS are covered too. This module will also act as the capstone module for a “Smart City” project.

ET949 DATA ANALYTICS
Students will be introduced to various data mining tools, data processing techniques and algorithms used for the analysis and visualization of the collected data stored on servers and also for streaming data. Students will apply the knowledge gained to build a functional prototype system that is able to analyse visual data and query data. This system will be used in a “Smart City” project.

ET950 NETWORK SERVER ADMINISTRATION
This module teaches the installation, configuration, application and use of Network Server Operating Systems. Students are taught to how to install, configure and manage users and computers over a network. Topics that will be covered include installation, configuration, management of accounts and resources, troubleshooting and network security.

ET952 COMPUTER COMMUNICATIONS
Provides the basic concepts in data communication. It covers the necessary understanding of essential networking equipment and techniques used in the implementation of data communication systems. In addition, examples of applications of data communication in the industry are also included with extensive hands-on operations using data communication equipment.

ET953 COMPUTER NETWORKING
Introduces protocols using TCP/IP, routing bridging and acquiring an understanding of router components and routing protocols. The module also includes routing protocols, configuration and management of access lists and packet filtering.

ET954 INTERNETWORKING
This module covers an introduction to data networking, and switching, concept of VLANs. Wide Area Network Technologies and design, and protocols for transporting voice and data over wide area networks are also taught. Topics include network planning, managing, load sharing and security techniques.

ET957 INTEGRATED BUILDING ENERGY MANAGEMENT SYSTEMS FOR ENERGY EFFICIENCY
This module is designed to provide students with the required knowledge and skills to set up a successful energy management programme. This module will provide an overview of the Energy Efficiency Market (NEM) in Singapore. It will also address the relevant pertinence rules and impact on Singapore. Students will also be exposed to the fundamentals of energy economic and life cycle cost analysis and calculation. The knowledge to carry out financial analysis and cost prediction for energy saving assessment will be shared through various case studies and/or application examples.

ET960 DYNAMICS AND CONTROL
Introduces the basic principles of automatic control and illustrates the applications of these principles in modern control systems. Topics include mathematical models, dynamic analysis, stability analysis, frequency response analysis, s-plane analysis and compensation techniques.

ET961 COMPUTER METHODS FOR POWER SYSTEM ANALYSIS
Students will learn techniques and algorithms for the formulation of network matrices for power system analysis such as power system fault studies for symmetrical and unsymmetrical faults, load flow studies and transient stability analysis. Emphasis is on the application of computer methods to the solution of these problems. Interpretation and use of results to specify circuit breaker ratings and relay settings, methods of reinforcing and improving system security and stability will be included.

ET962 POWER SYSTEM PROTECTION
Teaches the fundamental principles of relay operation and shows how they are applied to the protection of specific system elements. Over-current, directional, differential, pilot and distance protective relays will be described. Calculation of relay settings for the different types of relays will be explained. Also included are the fundamental application principles, protection requirements of the various system elements, application practices, and methods of testing and commissioning protective schemes.
Synopses

**ET1612 POWER TRANSMISSION AND DISTRIBUTION**

This module provides students with an insight into the basics of designing and understanding electrical transmission and distribution. It also enables students to understand the principles of operation of various types of busbar arrangements, modern network configurations and high voltage equipment including cables, reactive power and voltage compensation devices. Overvoltages and voltage transients in power systems and the concept of insulation co-ordination for high voltage equipment are also introduced. The application of computer and CAD software packages to carry out electrical design and drafting will also be included. Smart metering and smart grid will also be discussed.

**ET1613 HIGH VOLTAGE OPERATION**

Introduces high voltage equipment and accessories like high voltage switchgears, circuit breakers, transformers, metering and protection relays. Understanding of high voltage single line and control drawings will be emphasised so that the student can understand the control, instrumentation and protection functions of high voltage switchgear. The course will also cover different protection schemes, application of on-load tap changers, and high voltage testing, commissioning and maintenance.

**ET1614 POWER SYSTEM PLANNING AND CONTROL**

An introduction to the engineering and economic factors involved in planning, operating and controlling power systems. Topics include planning procedures for large utilities and industrial power systems, reliability and contingency analysis, economic studies and financial analysis and computerised Supervisory Control and Data Acquisition (SCADA) systems. Developing trends and the use of Artificial Intelligence in a computerised power system, and electricity market will also be discussed.

**ET1623 ELECTRICAL DRIVES AND CONTROL**

This module provides knowledge to students on the practical aspects of industrial drives. The topics covered are DC Drives, AC Drives, Step Motor Drives and their applications, motor sizing and protection system design. The application areas include air-conditioning systems, fire detection and alarm systems, security systems and other essential building services. The lectures will be supplemented with hands-on training sessions in the Building Automation System Application Centre.

**ET1625 ELECTRICAL SERVICES DESIGN**

Provides students with an in-depth understanding of the design methodology of various electrical building services. In particular, it will cover the design, specifications and selection of electrical installation, EIB system, lighting system and lightning protection system. Relevant acts and regulations governing the design of these various electrical services will also be discussed in detail in the module.

**ET1630 POWER DISTRIBUTION SYSTEM IN BUILDINGS**

Aims to provide students with in-depth technical knowledge on the planning, design and commissioning of high and low voltage (230V – 22kV), electrical installation and distribution systems in commercial, residential and industrial buildings. Relevant acts and regulations; code of practices and standards; operation, selection and sizing of various system components such as standby generator, switchgear and transformer will also be included in this module.

**ET1631 BUILDING AUTOMATION SYSTEMS**

This module provides an integrated system approach to understanding Building Automation Systems and their applications to building services. It covers the architecture, communication methods and application software of modern building automation systems, and provides good working knowledge on how to specify, design, install, commission, operate, and maintain a Building Automation System. Application areas include air-conditioning systems, fire detection and alarm systems, security systems and other essential building services. The lectures will be supplemented with hands-on training sessions in the Building Automation System Application Centre.

**IA001 INTERNSHIP PROGRAMME**

This module aims to provide students with a practice-oriented training with work placement in an architectural design environment, with opportunity to relate what is taught in the classroom to actual work situations. The learning outcomes facilitate authentic learning, through hands-on work experience, providing opportunities for students to enhance their skills and knowledge, as well as develop new learning opportunities for students to hone their life skills and develop values and ethics in an organization.

**IA002 INTERNSHIP PROGRAMME**

This module introduces students to the operation principles of various types of rectifiers and inverters. Various control and modulation techniques as well as the applications of the converters will be covered.

**IA003 INTERNSHIP PROGRAMME**

This module aims to provide students with an in-depth understanding of various electrical building services. The module covers the application of computer and CAD systems to carry out electrical design and drafting. The course will also cover different protection schemes, application of on-load tap changers, and high voltage testing, commissioning and maintenance.

**IA007 INTERNSHIP PROGRAMME**

This module aims to provide students with various competencies, skill sets and professional attitudes for the design industry. It establishes a platform for students to acquire the knowledge and experience of the design process under a real-life, complex and competitive working environment. By working on live projects and performing their assigned roles, our students are guided to become more responsible and adaptable in the design practice. This programme comprises a 12-week programme and a structured learning outcome, which permit authentic learning opportunities, hence our students benefit by attaining the most relevant industry standard of practices.

**IA005 INTERNSHIP PROGRAMME**

Internship is an important component of a polytechnic education as it offers students insights and challenges of the relevant profession. It also provides them the appropriate platform to apply their theoretical knowledge in a real-life context, hone their practical skills and cultivate the right working attitude. This module forms part of the FEEL (Focus on Entrepreneurial and Empathic Learning) programme that spans over 3 months to its completion. The students will gain working experience in the flavour and fragrance houses, cosmetic and personal care companies, chemical research institutes and other related fields.

**IC004 INTERNSHIP PROGRAMME**

This module also discusses the importance of market prospects and the role of government in the development of the electricity market. It will also discuss the role of computerised Supervisory Control and Data Acquisition (SCADA) systems in developing computerised Supervisory Control and Data Acquisition (SCADA) systems. Developing trends and the use of Artificial Intelligence in a computerised power system, and electricity market will also be discussed.

**IC005 INTERNSHIP PROGRAMME**

This module introduces students to the core concepts of the SCADA systems and their applications in building automation. It covers the architecture, communication methods and application software of modern building automation systems, and provides good working knowledge on how to specify, design, install, commission, operate, and maintain a Building Automation System. Application areas include air-conditioning systems, fire detection and alarm systems, security systems and other essential building services. The lectures will be supplemented with hands-on training sessions in the Building Automation System Application Centre.
INTERNSHIP PROGRAMME

The primary aim of internship is to prepare students with competencies, skills and attitudes for the working world and lifelong learning. The internship involves a 22-week work attachment in organisations where students develop and apply their theoretical knowledge in a real-life context. Internship provides students with opportunities to apply theoretical knowledge, skills and attitudes in the workplace and to reinforce their competencies, skills and attitudes for the working world in the arenas of their learning.

IC2006 INTERNSHIP PROGRAMME

Internship involves a form of experiential learning in which students are required to complete a 26-week internship programme with a company that services the maritime sector in Singapore or overseas. Internship is an option for students who wish to apply theoretical knowledge in a professional setting or in a work environment and imbue values such as professional ethics, integrity and social responsibility.

IC2007 INTERNSHIP PROGRAMME

Internship forms the cornerstone of polytechnic education where our students obtain relevant professional industrial insights and skills. Furthermore, internship also provides an opportunity for students to apply theoretical knowledge in a real-life context, hone their practical skills and cultivate the right working attitude. The students will gain working experience in the hospital diagnostic laboratory, hospital research laboratories, key research institutes, universities (local and foreign), private diagnostic laboratories and private companies.

IC2008 INTERNSHIP PROGRAMME

Enables students to gain professional experience from a real-life IT working environment.

IC2009 INTERNSHIP PROGRAMME

Enables students to gain professional experience through work attachments in organisations such as professional ethics, integrity and social responsibility. Internship forms the cornerstone of polytechnic education where our students obtain relevant professional industrial insights and skills.

IC2010 INTERNSHIP PROGRAMME

Enables students to gain professional experience through work attachments in organisations such as professional ethics, integrity and social responsibility. Internship forms the cornerstone of polytechnic education where our students obtain relevant professional industrial insights and skills.

IC2011 INTERNSHIP PROGRAMME

Enables students to gain professional experience through work attachments in organisations such as professional ethics, integrity and social responsibility. Internship forms the cornerstone of polytechnic education where our students obtain relevant professional industrial insights and skills.

IC2012 INTERNSHIP PROGRAMME

Enables students to gain professional experience through work attachments in organisations such as professional ethics, integrity and social responsibility. Internship forms the cornerstone of polytechnic education where our students obtain relevant professional industrial insights and skills.

IC2013 INTERNSHIP PROGRAMME

Enables students to gain professional experience through work attachments in organisations such as professional ethics, integrity and social responsibility. Internship forms the cornerstone of polytechnic education where our students obtain relevant professional industrial insights and skills.
This module aims to equip students with the skills to critically evaluate the elements of narratives used in a variety of contexts, and to appreciate and harness the power of storytelling in our daily life. Students will analyse narratives to connect and contextualise self to society, and learn to craft impactful personal narratives to inspire or influence others.

**Foundation Language and Communication Skills**

This module aims to help students build a sound language foundation to prepare them for their polytechnic education. The objective is to nurture active listeners, confident speakers, skillful readers and accurate writers.

**Narrative Thinking**

This module aims to equip students with the skills to critically evaluate the elements of narratives used in a variety of contexts, and to appreciate and harness the power of storytelling in our daily life. Students will analyse narratives to connect and contextualise self to society, and learn to craft impactful personal narratives to inspire or influence others.
This module aims to equip students with a better understanding of themselves, the world and the contribution they can make to the local and global community. Students will be engaged holistically in cognitive, affective and physical domains with a focus on principle-centred leadership training.

NARRATIVE THINKING

This module aims to equip students with a Design Thinking mindset in a social innovation context. Students collaborate in multi-disciplinary groups to apply Design Thinking tools and methods to create innovative prototype solutions for overseas social issues. In the process, they will develop a better understanding of themselves, and empathy for a overseas community in need.

CRITICAL AND ANALYTICAL THINKING

This module aims to equip students with skills in critical and analytical thinking, which enables them to evaluate different perspectives, articulate a point of view and support it with relevant and credible evidence. The module also provides students with opportunities to practice information literacy and critical and analytical thinking through the exploration of contemporary local and global issues.

ACTIVE AND EFFECTIVE CITIZENRY

This module aims to equip students with the skills to critically evaluate the elements of view and support it with relevant and credible evidence. The module also provides students with opportunities to practice information literacy and critical and analytical thinking through the exploration of contemporary local and global issues.

FINANCIAL ACCOUNTING IN SHIPPING

Provides students with an understanding of the basic concepts and principles of financial accounting leading to the preparation of published key financial statements including the income statement and balance sheet. Students will learn the double-entry system of accounting, the accounting process, the accounting treatment of assets and inventories, voyage and shipping accounting.

FINANCIAL MANAGEMENT IN SHIP OPERATIONS

Focuses on students as the financial objectives and financial environment of maritime-related organisation. It deals with basic concepts such as the relationship of risk and return, and the time value of money. Other areas include financial forecasting, financial planning and short-term financial planning of a shipping organisation.

LOGISTICS MANAGEMENT

Students will be able to demonstrate knowledge of the physical and other components of transport systems, an understanding of the significance of freight transport in a modern economy and the application of intermodal concepts. They will be able to analyse the employment, organisation and motion of goods and cargo in the freight transport industry in Singapore. They will be able to appreciate the value of a logistical approach to delivery of goods.

MARKETING OF SHIPPING SERVICES

Assists students to identify the characteristics of services and their marketing implications for strategy development and execution. It enables potential shipping professionals to be market-oriented in their approach to the shipping business with an awareness of techniques inherent in a marketing approach for shipping and logistics services.

MARITIME INSURANCE

Provides students with an understanding of the law affecting the various aspects of the maritime industry. The module will cover topics such as marine insurance, general average, P&I and Lloyd's, marine cargo and charterparty. Students will be taught the use of marine law in practice, and the ethical and professional issues associated with practising maritime law.

MARITIME PERSONNEL MANAGEMENT

Provides a basic understanding of the employment and management of a port in terms of business. Students will learn about the management of the crew, the relationships between the crew, ship and cargo, maritime training and development and the types of safety and environmental regulations that apply.

MARITIME LAW

Provides students with an understanding of the law relating to the carriage of goods by sea and its underlying principles. Topics include sources and application of law, basic features of the Singapore legal system, and general principles of the law of contract relating to shipping. The module will also cover tortuous liability relating to shipping services, goods by sea acts.

MARINE ENGINEERING KNOWLEDGE

Provides students with the basic knowledge and understanding of the working and constructive features of shipboard machinery and systems.

MARITIME LAW

Provides students with an understanding of the law relating to the carriage of goods by sea and its underlying principles. Topics include sources and application of law, basic features of the Singapore legal system, and general principles of the law of contract relating to shipping. The module will also cover tortuous liability relating to shipping services, goods by sea acts.

MARINE INSURANCE

Provides students with an understanding of the law of carriage of goods by sea and its underlying principles. Topics include sources and application of law, basic features of the Singapore legal system, and general principles of the law of contract relating to shipping. The module will also cover tortuous liability relating to shipping services, goods by sea acts.

MARINE OFFSHORE OPERATIONS

Provides students with an overview of the offshore industry and related operations. Emphasis will be placed on the types of offshore vessels and their operations and how they are used in the exploration and pipe laying methods, a typical organisational structure of offshore management company, basic training requirements of offshore personnel and international organisations influencing the offshore industry e.g. OFFITO.

MARINE CARGO HANDLING

Provides students with an overview of the types of cargo handled on ships, their characteristics and how they are dealt with in terms of loading, stowage and cargo handling. The module will also cover aspects of cargo documentation, cargo handling, disbursements and office organisation.

MARINE SAFETY AND ENVIRONMENTAL MANAGEMENT (HSSE)

Students will be given an appreciation on the need for HSSE Management on board ships. Topics covered in the module include knowledge of the key elements of a ship’s safety and environmental management system as required per the ISM code and the ISPS codes, international legislation on minimising and threat of pollution at sea, and risk assessment in formulating all safety procedures.

MARINE TRANSPORTATION

Provides students with an understanding of the various aspects of shipping business. Topics include ownership structure, registration of ships, roles, responsibilities and legal obligations of the ship’s master pertaining to the safety of the crew, ship and cargo, maritime arbitration, collision law and case salvage and limitation of liability.
The syllabus covers the solar system as used for navigation; the principles and concepts of celestial and ocean navigation, position determination using these principles and concepts, and an understanding of chart projections used in navigation. This module supports the module Practical Navigation taught at the Phase 3 stage.

MA0542 PRACTICAL NAVIGATION

Provides students with comprehensive handson application of terrestrial, celestial and ocean navigation principles that are essential for keeping an independent bridge watch at sea. This module applies the principles and concepts studied by the students throughout the course including Principles of Navigation taught in Phase 1B, and forms an integral component of the syllabus of the International Maritime Organization (IMO) for an officer in charge of a navigational watch.

MA0543 COASTAL NAVIGATION

Provides students with an in-depth knowledge of coastal navigation, and the practical skills to enable them to perform the duties of an independent bridge watchkeeping officer. Students will undertake a more in-depth study of tide predictions and calculations on coastal ports, and basic principles and skills on passage planning using the Electronic Chart Display and Information System. The students will also be introduced to the work and duties of a junior navigating officer with respect to preparation of the chart folios, correction of charts and the use of various publications for the intended voyage.

MA0545/MA0556 METEOROLOGY

Students are taught about diverse weather patterns and their causes, taking and recording weather observations, and an appreciation of the planetary system of wind and pressure on the surface of the Earth. They will also study the working of various weather monitoring instruments used on-board.

MA0555 SHIP KNOWLEDGE

Students will be introduced to the basic concepts and functions of offshore operation. Students will also be introduced to the various features and functions of offshore vessels employed in the trade. The module will also cover methods of geological surveys and the exploration process to facilitate the availability of oil and gas. Students will also be introduced to the concepts involved in Dynamic Positioning systems.

MA0562 CARGO WORK & I&M

This module provides the students with a working knowledge of various types of cargo and the operations involved in their handling. Students will also be required to develop the skills necessary to secure the necessary legal permissions, maintain and conduct marine safety training programmes.

MA0563 ELECTRONIC NAVIGATION SYSTEMS 2

Provides students with a more in-depth and a working knowledge of various electronic navigational systems/equipment found onboard merchant ships. Training will include hands-on simulation. This module builds on Electronic Navigation Systems 1 taught earlier in year 2.

MA0566 SHIP CONSTRUCTION & SHIP STABILITY

This module provides students with a working knowledge of ship stability to ensure that ships under their charge are in a safe condition at all times. Particular emphasis will be placed on cargo distribution, its effects on ship construction and their stress; the stability of the ship both at rest and in a seaworthy condition.

MA0568 BASIC TANKER OPERATION

This module combines the Basic Training in Oil and Chemical Tanker Cargo Operations and Basic Training for Liquefied Gas Tanker Cargo Operations. It is meant for officers and ratings assigned basic duties and responsibilities related to cargo or cargo equipment on board oil and gas tankers. It is a basic training programme appropriate to their duties, including basic training for oil, chemical and gas tanker cargo operations and technical training for pollution, operational practice and obligations under applicable laws and regulations.

MA0570 BASIC OCCUPATIONAL SAFETY AND SECURITY TRAINING

Provides students with a sound knowledge of shipboard safety and security. Students will also be introduced to the concept of the ISM Code. This module is geared towards the Certificate of Competency for the General Officer’s Certificate issued by the Infocom and Media Development Authority of Singapore.

MA0571 PROJECT WORK

Provides students with understanding of the methodology used in carrying out a project in which multiple-disciplinary skills and knowledge are integrated and applied in a problem solving environment.

MA0572 CAD

Provides students with the knowledge and skills to produce engineering drawings using a computer-aided drafting system.

MA0573 INTEGRATED CONTROL

Provides students with an understanding of the economics of shipping business and its operation and practices. Financial accountability in a shipping environment is also covered.

MA0574 ELECTRONICS

Introduces students to basic analog/digital electronics and the use of various systems used on board a ship.

MA0575 ELECTRICAL MACHINES AND SYSTEMS

Provides students with an understanding of electronic devices and systems. This knowledge will familiarise students with components used in control and operation of various systems used on board a ship.
NAVAL ARCHITECTURE II
Builds upon the foundation given in the module Naval Architecture I to acquire a further understanding of the principles in ship design and construction. It provides students with an understanding of intact and damaged ship stability, ship propulsion, sea keeping and manoeuvring, ship strength and ship structure.

MARINE ENGINEERING KNOWLEDGE I
Provides students with the basic knowledge and understanding of the roles and responsibilities of marine engineers on ship operations. It also touched on the shipboard systems and provide foundation knowledge.

BASIC OCCUPATIONAL SAFETY AND SECURITY TRAINING
Covers Personal Safety and Social Responsibility which familiarises students with the code of safe working practices on board a ship. The aspects covered include fire prevention, fire protection and fire fighting. The training develops the students to react in a correct manner in the event of an outbreak of fire, to take appropriate measures for the safety of personnel and of the ship, and to use fire appliances effectively. The module also introduces Personal Survival Techniques which provides the students with the essential knowledge and skills and handling of survival crafts, principles of survival and rescue techniques.

APPLIED MECHANICS
Introduces students to the fundamentals of mechanics of bodies and systems and also provides them with the basic tools for analysing the static and dynamic behaviours of bodies and systems encountered throughout the course. It also teaches the basic concepts of strength of materials to assess the stress and strain on structural and engineering components.

ELECTRIC CIRCUITS
Provides students with a sound knowledge of the fundamental principles of Electrical Technology. It supports further work in the course.

BASIC THERMODYNAMICS
This is a foundation course on basic engineering principle of thermodynamics and provides an understanding of the First and Second Laws of Thermodynamics.

ENGINEERING DRAWING
Provides students with the knowledge and understanding of Engineering Drawing principles. They are required to produce isometric sketches, and assembly drawings of marine engineering parts.

NAVAL ARCHITECTURE I
Provides students with an understanding of the basic concepts in ship geometry, flotation and transverse as well as longitudinal stability of a ship under various loading conditions.

ENGINEERING MECHANICS
Builds on previous work done in Applied Mechanics. It introduces the principles of Strength of Materials which is applied to analyse the effects of bending and torsion on structures and engineering materials. This module also studies the flow characteristics of fluid in pumps and pumping systems. In addition, it deals with the dynamics of running machinery under load and the influence of mechanical vibration commonly encountered in engineering systems.

INTEGRATED WORKSHOP PRACTICE
Provides students with the knowledge and skills in carrying out various workshop and fabrication tasks to fabricate sheet metal items, and overhaul and repair simple machinery parts. This module reinforces the basic skills and knowledge acquired in Workshop Practice I and II.

APPLIED THERMODYNAMICS
Provides students with the understanding to apply the knowledge of thermodynamic laws and cycles, and heat transfer in piston air compressors, refrigerating and air conditioning plants, and combustion processes.

MARINE ENGINE ROOM SIMULATION TRAINING
This module is to provide students with the knowledge and skills to operate, supervise and monitor the safe operation and control of a ship’s propulsion plant machinery installation in accordance to the requirements of the STCW Code using practical sessions at the Marine Engine Simulator. Instruction is based on structured laboratory notes and series of practical exercises.

MARINE POWER PLANTS
Provides students with the knowledge and understanding of the working principles, the constructional and design features and the safe operational practices of marine diesel engines, marine steam boilers and turbines, and gas turbines.

NAVIGATION
This module provides students with the knowledge and understanding of marine navigation, and the use of marine electronic navigational equipment, and systems found onboard merchant ships. With the knowledge and techniques gained, they are expected to effectively execute tasks in voyage planning, search and rescue; storm avoidance; being aware of the accuracy of the different types of position fixing; establishing watchkeeping arrangements and bridge team and making landfall and navigating in pilotage waters. They are also expected to understand the concept, merits, limitations, precautions and implications of the different navigational systems.

SHIP HANDLING & SIMULATOR
This module provides students with knowledge of basic ship handling techniques and safety aboard ships, so that they will be able to effectively perform the duties of chief officer and master. In addition, the handling of vessels in the navigating bridge simulator would enhance the confidence and prepare them for the O ‘Rahal examination. The syllabus also covers the Navigational Control Course (NCC) requirements.

MARINE PLANT & PROPULSION
This module provides students with the theoretical knowledge required for deck officers at management level to understand the operating principles of marine power plants, ship’s auxiliary machinery and a general knowledge of marine engineering terms, so as to enhance the safe operation of a ship.

CARGOWORK
This module provides students with the knowledge of handling and receiving of shipments and operations of port agencies that include the understanding of shipping documentations, practices, disbursements and maritime fraud are also covered in this module.

PORT AND CARGO MANAGEMENT
This module provides students with a broad understanding of the basic elements in policy making, planning and management of ports and terminals with particular reference to the Port of Singapore. It also provides a broad knowledge of the handling, storage and carriage of dry and liquid bulk cargo and ship management and safe transportation of dangerous goods. Basic elements in the operations of agents that include the understanding of shipping documentations, practices, disbursements and maritime fraud are also covered in this module.

LEADERSHIP AND TEAM WORK — HOW TO SUCCEED IN AN ORGANISATION
Provides students the basic structural elements of a new work place. Learn about the dynamic of cross culture working environment. They will be trained in interpersonal skill and mental resilience to survive in adverse working condition. Most suitable for students who are preparing a sea career.

MARINE BUSINESS
A generic skill training programme that aims at students from engineering but want to have some knowledge in business and finance. Using actual cases from the marine industry, students will be taught how to start a business and grow it. Concept of SWOT analysis and forecasting will be covered.

MARITIME ECONOMICS AND SHIPPING
This module incorporates the understanding of maritime economics and the business of ship broking, chartering and ship sale and purchase. The students will learn through working on a series of current ship chartering contracts, ship sale and new building contracts which includes the process of negotiating a charter party and related documentation, law and valuation of ships.

MARITIME LAW AND INSURANCE
This module provides students with knowledge and understanding of the main principles of maritime law and the commercial, safety and environmental policies and values which underpin it. The module will also provide students with an understanding of marine insurance and how different aspects of marine insurance play a role in shipping.

PORT AND CARGO MANAGEMENT
This module provides students with a broad understanding of the basic elements in policy making, planning and management of ports and terminals with particular reference to the Port of Singapore. It also provides a broad knowledge of the handling, storage and carriage of dry and liquid bulk cargo and ship management and safe transportation of dangerous goods. Basic elements in the operations of agents that include the understanding of shipping documentations, practices, disbursements and maritime fraud are also covered in this module.
MAS005 SUPPLY CHAIN MANAGEMENT
This module aims to provide a thorough knowledge and understanding of how supply chain management and distribution channels play an integral role in a firm’s marketing strategy. The elements of a typical Supply Chain will be covered, including the important role of transportation within the Supply Chain Network.

MAS006 MARITIME ECONOMICS AND SHIPBROKING
This module incorporates the understanding of maritime economics and the business of ship broking, chartering and ship sale & purchase. The former aims to equip students with the knowledge and skills of economics and the commercial environment in which the shipping industry operates, including the factors that influence the supply and demand of shipping services. The latter will provide insights into the business of ship broking and chartering. Students will learn through working on a series marketing its role and its application in the shipping industry. Particular emphasis will be given to the characteristics of shipping services and their marketing implications for strategy development and implementation. A discussion of the role of Internet and marketing using the World Wide Web will also be discussed.

MAS007 Shipping Law & Insurance
The aim of this module is to provide students with knowledge and understanding of the main principles of maritime law and the commercial, safety and environmental policies and values which underpin it. The students will be provided with the experience in dealing with legal principles deriving from various practical aspects of shipping as well as knowledge of the international conventions, statutes and case law. The module will also provide students with an up-to-date understanding of marine insurance and how different aspects of marine insurance play a role in shipping. Topics covered may include, but are not limited to, operation of marine insurance in shipping, placing a risk in the market, Institute Hull and Cargo Clauses, General Average claims, P&I Club, and marine pollution protection schemes.

MAS002 PORT AND CARGO MANAGEMENT
This module aims to provide a sound understanding of the basic elements in policy making, planning and management of ports and terminals with particular reference to the Port of Singapore. Emphasis is placed on the ship-shore interface with regards to the planning and organization of resources to achieve optimum performance pertaining to container and bulk operations. The module also provides a broad knowledge of the handling, stowage and carriage of dry and liquid bulk as well as container management and safe transportation of dangerous goods. Basic elements in the operation and organisation agencies that understand the understanding of shipping documents, practices, disbursements and maritime fraud are also covered in this module.

MAS003 MARKETING AND FINANCIAL MANAGEMENT
This module will provide participants with a broad knowledge of Financial Management where by principles can be practically can be applied in shipping and ship management companies. Further, it will also provide a fundamental understanding of the financial tools and techniques that are used in shipping investments. The topics would include topics such as accounting & financial reporting, financial analysis, elements of costing and budgeting, investment appraisal etc. A discussion of the role of Internet and marketing using the World Wide Web will also be discussed.

MAS004 SHIP MANAGEMENT AND SURVEYING
This module aims to provide a thorough knowledge and understanding of ship management, as well as ship surveys. Ship management deals with seaworthy vessels, which includes crew and technical management. Additionally, it also covers commercial management, which includes voyage estimations and responsibilities of an operations department. Ship surveys play an important role in the management of ships. This module will provide students with the concept and coverage of the various surveys, including the commercial aspects of on/off hire and bunker surveys.

MAS005 SUPPLY CHAIN MANAGEMENT
This module aims to provide a thorough knowledge and understanding of how supply chain management and distribution channels play an integral role in a firm’s marketing strategy. The elements of a typical Supply Chain will be covered, including the important role of transportation within the Supply Chain Network. It also discusses the basic concept of supply chain management, the types of channel structures and the factors that influence channel design, development and performance. The areas of Cold Chain Management, role of IT in Supply Chain Management, Custom Supply Chain will also be discussed.

MAS006 MARINE OFFSHORE OPERATIONS
This module aims to provide students with an overview of the offshore industry and related operations. The students will learn and appreciate the main types of international agreements on oil exploration and the various parties involved in the exploration. They will also learn the organization of the offshore management company and the basic training requirements for offshore personnel. Participation will be placed on the operations of different types of vessels deployed for various purposes of offshore operations such as seismic survey, oil exploration/production and pipe-laying. Oil current ship chartering contracts, ship sale and new building contracts, which include the process of negotiating a charter party and related documentation, law and valuation of ships.

MAS007 OPERATIONS AND INFORMATION MANAGEMENT
Provides students a foundation in the essential concepts of operations management, management science, statistics, and information systems. The themes covered in this module is on the analysis of business decisions and processes, supply chains, and effective use of quantitative methods and information technology to improve business operations.

MAS008 TRANSPORTATION MANAGEMENT
This module is an overview of the transportation sector, including transport authorities, operators and companies. It examines policy issues, such as electronic road pricing, along with managerial strategies in transportation. The students will also be equipped with the knowledge of ICT integration so as to meet the challenges of transportation systems.

MAS011Z GAMES DESIGN AND DEVELOPMENT STUDY 1
This module exposes students to 2D and 3D game projects where they will be applying the technical skills that they have acquired from other supporting modules in Year 1 & 2 to produce games in a team. There are opportunities for students to work on real life projects, which will bring workplace practices to the classroom to give a more authentic experience. Students will go through the production pipeline and learn how to use agile project management methods in managing the game projects. In these projects, they will acquire techniques on managing communication, conflict and stakeholder expectations through simulated experience and guidance from our tutors.

MAS012Z GAME DESIGN 2
This module covers how games create experiences beyond entertainment. Students learn the theories behind User Interface and User Experience to design games for different applications. Students will be given a brief about crafting narrative for games and how to design unique mechanics and levels for 2D and 3D games on game consoles, personal computers and mobile devices.

MAS013Z GAMES DESIGN AND DEVELOPMENT STUDIO 3
Students engage in a Final Year Project (FYP) to formulate a design proposal with the relevant research, derive game-play structures and designs, program the game, conduct play testing and finally document the creative process. This module will be a platform for students to demonstrate their technical capabilities in game making, using the platforms and technologies that have been accumulated and developed in the course. In a simulated game studio environment, students will also develop their ability to manage a project, as well as work and communicate in teams with diverse roles.

MAS014Z GAME ART AND ANIMATION 4
Students will be required to apply all the knowledge they have learnt in DMAT and refine them to the standards required commercially. These products will eventually be released commercially to the public. Students will learn first hand what it takes to bring a musical or audio product into the market, by working alongside their lecturers.

MAS015Z MUSIC THEORY 1
This is a foundational module that aims to equip students with basic music theory skills. Students will acquire musical literacy, as well as basic analytical and harmonic skills. Emphasis is on the tonal harmony used in traditional European Western music. Students will also be given an overview of the History of Western Art Music. They will examine significant developments and characteristics of the Common Practice Period. Including some important composers and their works.

MAS016Z PRODUCTION LAB
Production Lab is a facilitated time and space for students to explore the entire production process at an elementary level. Drawing connections between the concepts introduced in the first-year modules. Through analysis of processes and reflections, the student will be exposed to various concepts that feed into the goals of the production process as well as cultivate their sensitivity towards the supporting processes.

MAS017Y/M MUSIC THEORY 2
This is a foundational module that aims to equip students with basic music theory skills. Students will acquire musical literacy, as well as basic analytical and harmonic skills. Emphasis is on the tonal harmony used in traditional European Western music. Students will also be given an overview of the History of Western Art Music. They will examine significant developments and characteristics of the Common Practice Period. Including some important composers and their works.

MAS021Y/Z PRODUCTION WORKSHOP
Lecturers will design commercial music projects from individual music artists, to bands, to music and audio for visual media, to music and audio for mobile, video games, and from the ground up the way it would be done in the industry. These projects will bring together the learning that students have learnt in DMAT and refine them to the standards required commercially. These products will eventually be released commercially to the public. Students will learn first hand what it takes to bring a musical or audio product into the market, by working alongside their lecturers.
MD427Z

DIGITAL COMPOSITING
This module aims to educate students on advanced compositing skills used in the media industry. Students will be taught 2D and 3D compositing workflow and will apply compositing methods such as edge blending and de-splicing for green/blue screen. Skills learnt in this module can then be applied to other modules in the course.

MD428Y/Z

BRAND DESIGN STUDIO
This module provides a key overview of applied design within real-world commercial contexts, focusing on brand experience in an integrated communications environment. Students will learn key concepts and components of marketing and advertising through the formulation of marketing plans and executing creatives in the areas of Corporate Identity, Packaging Design, Advertising Campaigns and Publication Design. Practical sessions on Desktop Publishing tools will equip students with the technical aspects of design visualisation. Pre-press skills and production knowledge will also be taught to ensure that students have a thorough understanding of the visual communications design ecosystem.

MD605Y/Z

VIDEO AND AUDIO FUNDAMENTALS
Aims to train students in basic video production. Students will learn essential camera functions and grammar of shots. Students will plan, shoot, edit the sequence and export the video for delivery. For audio, students will select the required audio formats. They will also be taught how to edit and export audio. Students will be required to produce a presentation of good quality video.

MD606

DIGITAL COMPOSITING
This module aims to train students with compositing concepts such as multipass compositing, matte extraction, roto-scoping, color correction and related techniques. Prior knowledge used in the production of movies and motion graphics. Various compositing effects will also be incorporated. This module provides students with an opportunity to apply their compositing skills to their footages to enhance their sequence.

MD0004

FOUNDATION DESIGN STUDIO
This module introduces the basic skills in design and creative processes. It will be the basis for the development of short projects to explore various design methods. Students will be taught to explore the creative process, develop ideas, accumulate and learn to question normality and standard practices and to think creatively and critically.

MD0005

COURSE SPECIFIC SKILLS
This module aims to introduce students to the fundamentals of the design, hardware, software and technical skills necessary for their respective diploma. Students will be expected to understand the basics of each area as a foundation for further development in their respective fields.

MD0009

GRAPHIC AND VISUAL COMMUNICATION
This module introduces students to various means of digital media. Students will be introduced to the basic fundamentals of digital photography, vector graphics creation and typographic. Photography skills will be taught to equip students with the vocabulary of the medium to convert photographs with basic digital retouching skills to transform images into meaningful storytelling images. Digital Vector Illustration with practical sessions in typography and layout design are also introduced. Students will understand the basics of page hierarchy and effective visual flow through layout & composition design. Students will have a portfolio of typographic design projects. The module will equip students with the necessary skills and creativity to create digital artwork that can be used for product visualization, creative concept and production assets. The module will let students explore the asset creation discipline within the 3D production pipeline.

MD1101

ANIMATION STUDIO 1
Aims to provide students with primary production knowledge in integrating their previously learned skills sets ranging from modeling to rendering to comprehensively develop and manage a short animated film production. Students are to create standard production timelines based on their presented ideas and encouraged to utilize simple assets created in the Introduction to 3D Computer Graphic module where possible to produce and deliver an entertaining and informative 3D animated video clip.

MD1103

VISUAL STORYTELLING 1
Aims to equip students with fundamental storytelling skills and visual beacon to craft stories for various mediums. Students will acquire knowledge of story writing, visual grammar and narrative styles. Practical skills in drawing and framing visual scenes, visual story and design will be able to conceptualise effective beacons for a variety of media formats and story forms. Students will get to demonstrate their creativity and imagination in creating their projects.

MD1104

PICTURE PROPORTION AND ANATOMY
Aims to build on the concepts taught in Drawing with further emphasis on figure drawing. Students will study basic human anatomy like muscles, skeleton, and basic human proportion. This module will help prepare the students for the Character Design module.

MD1105

BASIC 3D MODELLING & TEXTURING
Aims to equip students with essential knowledge of 3D modeling and texturing. Students will learn how to model, texture and render using the latest 3D technology. Through hands-on sessions, students will be taught basic techniques and creativity to create digital artwork that can be used for product visualization, creative concept and production assets. The module will let students explore the asset creation discipline within the 3D production pipeline.

MD1106

3D ANIMATION FUNDAMENTALS
Aims to cover the traditional animation principles in-depth and adapt them for 3D. Through hands-on practical lessons, students will learn standard production pipelines based on the presented ideas and will work on small projects aiming to integrate various aspects of design and integrating them into other modules.

MD1107

LOGIC DESIGN
This module is designed to equip students with foundational knowledge to tackle elementary computational problems. The module introduces students to design solutions to solve problems using a computer program. Thus creating opportunities for students to learn computational thinking which encompasses decomposition: breaking down data, processes or problems into manageable parts; pattern recognition: observing and generalising patterns, trends, and regularities in data and processes into rules or generalizations; and the general principles that generate these patterns: algorithm design, developing step-by-step instructions for solving problems/tasks.

MD1108

GRAPHIC DESIGN PRINCIPLES
Aims to provide students with basic skills and knowledge of graphic design. Areas covered include principles and elements of design, typographic and graphic software such as Photoshop and Illustrator. This module would provide students with insight into layout design through understanding various forms of graphic design, typography and graphic software.
MD107 HISTORY OF ANIMATION
Aims to explore the origins of animation in general, and to introduce students to the development of key animation movements and techniques, drawing parallels between industry-leading practices in animation and contemporary popular examples. Through hands-on exercises and discussions, students will experience the process of creating animated film from concept to final delivery. Students will be encouraged to consider the impact of animation on modern society and culture.

MD108 BASIC LIGHTING & RENDERING
This module will introduce students to the fundamental principles of lighting and rendering in 3D. Students will develop an understanding of the key concepts and techniques required for effective lighting and rendering in 3D animation. Through practical exercises, students will gain hands-on experience in creating realistic and visually compelling scenes.

MD109 DIGITAL STORYTELLING
This module aims to introduce students to the process of creating story-driven animation. Students will learn the fundamental principles of storytelling and how to apply them in the context of animation. Through hands-on exercises, students will develop their skills in scripting, character design, and visual storytelling.

MD110 VISUAL STORYTELLING 2
This module will build upon the skills developed in MD109. Students will deepen their understanding of visual storytelling and apply it to the creation of more complex narrative structures. Through extensive hands-on exercises, students will explore the use of animation to convey story and emotion in a variety of contexts.

MD111 CHARACTER MODELING AND SETUP
This module will introduce students to the fundamentals of 3D modeling. Students will learn the process of creating a 3D model from concept to completion. Through practical exercises, students will develop their skills in creating realistic and visually compelling characters.

MD112 DIGITAL CREATURE MODELING AND SCULPTING
This module will introduce students to the process of creating complex and dynamic creatures. Students will learn the techniques and tools required to create realistic and visually compelling creatures.

MD113 GRAPHICS ANIMATION
This module aims to introduce students to the fundamentals of dynamic visual communication. Students will learn the principles of animation and how to apply them to the creation of dynamic visual content.

MD114 DIGITAL LIGHTING AND RENDERING
This module will introduce students to the principles and techniques of digital lighting and rendering. Students will gain hands-on experience in creating realistic and visually compelling scenes.

MD115 BASIC DYNAMIC SIMULATION
This module aims to introduce students to the principles of dynamic simulation. Students will learn the techniques and tools required to create realistic and visually compelling simulations.

MD116 CREATURE EFFECTS
This module aims to introduce students to the process of creating effects and atmospheres in animation. Students will learn the techniques and tools required to create realistic and visually compelling effects.

MD117 INDEPENDENT STUDY
This module aims to introduce students to the process of creating original work. Students will develop their own projects and present their work at the end of the module.

MD118 ANIMATION STUDIO 1
This module aims to introduce students to the process of creating animation in a professional studio environment. Students will work in teams to create a complete animation project.

MD119 ANIMATION STUDIO 2
This module aims to introduce students to the process of creating animation in a professional studio environment. Students will work in teams to create a complete animation project.

MD120 GAME DESIGN 1
This module aims to introduce students to the fundamentals of game design and development, starting with the typology and principles of games and its structures. Students learn the different categories of games and platforms available, review different games to developing their critical skills in the process, game structures, rules and play-testing. Students will also learn how to design basic game mechanics and levels for 2D games. Basic interactive design concepts, including interface design for physical and 2D games are covered as well.

MD121 ANIMATION STUDIO 3
This module aims to introduce students to the process of creating animation in a professional studio environment. Students will work in teams to create a complete animation project.

MD122 GAME DESIGN 2
This module aims to introduce students to the fundamentals of game design and development, starting with the typology and principles of games and its structures. Students learn the different categories of games and platforms available, review different games to developing their critical skills in the process, game structures, rules and play-testing. Students will also learn how to design basic game mechanics and levels for 2D games. Basic interactive design concepts, including interface design for physical and 2D games are covered as well.

MD123 GAME ART AND ANIMATION 1
This is a specialised module where students will develop critical understanding of 2D animation and animation for digital games. Animation basics and 2D sprites creation will be covered to provide support for students’ studio project. With the application of fundamentals in lighting, perspective, and concept design, this module allows students to use the combined knowledge to create the assets necessary for their 2D game projects with reference to a production pipeline.

MD124 DIGITAL LIGHTING AND RENDERING
Aims to equip students with essential lighting and rendering skills required to produce realistic images. Students will gain hands-on experience in creating realistic and visually compelling scenes.

MD125 CHARACTER, PROP & ENVIRONMENT DESIGN
Aims to develop students’ perspective drawing and understanding of character, prop, and environment design. Students will learn how to apply these skills to the creation of realistic and visually compelling scenes.

MD126 BASIC DYNAMIC SIMULATION
Aims to cover the traditional animation principles in-depth and adapt them for 3D. Students will learn how to apply these principles to the creation of realistic and visually compelling simulations.

MD127 INDEPENDENT STUDY
Aims to develop students’ critical understanding of a field of study related to their personal interest and to pursue independent research. Students will present their research at the end of the module.

MD128 FIGURE DRAWING FOR ANIMATION
Aims to build upon the concepts taught in MD110. Students will learn how to apply these skills to the creation of realistic and visually compelling characters.

MD129 CHARACTER MODELING AND SETUP
Aims to introduce students to the fundamentals of 3D modeling. Students will learn the process of creating a 3D model from concept to completion. Through practical exercises, students will develop their skills in creating realistic and visually compelling characters.

MD130 INDEPENDENT STUDY
Aims to develop students’ critical understanding of a field of study related to their personal interest and to pursue independent research. Students will present their research at the end of the module.
number of approaches to algorithmically realized via computer programming. Students are introduced to fundamental computer programming concepts and to a number of approaches to algorithmically create musical material. These are applied to produce music in a number of different musical genres. In addition to refining the students’ skills in using a Digital Audio Workstation, several advanced synthesis techniques are covered. Aims to produce a portfolio of short compositions utilizing a variety of formal compositional procedures which are realized via computer programming. Students are introduced to fundamental computer programming concepts and to a number of approaches to algorithmically create musical material. These are applied to produce music in a number of different musical genres. In addition to refining the students’ skills in using a Digital Audio Workstation, several advanced synthesis techniques are covered.

MD3203 THE BUSINESS OF MUSIC
Introduces students to the business, legal and ethical aspects of the music world and students will learn about its organisational structure including the different roles major players and career opportunities in it. An introduction to entrepreneurial skills required in the modern online music environment will also be included.

MD3204 ARRANGING
Aims to explore a variety of genres, as well as writing approaches. By analysing various musical examples, students will be able to draw out the important elements in the different genres studied, and incorporate them into their own styles of writing.

MD3302 SCORING FOR VISUALS
The module aims to equip students with the ability to apply appropriate compositional skills to support the intended emotions of moving images. Students will be exposed to the processes and practices of scoring and they will analyse the different functions of film scores through class discussions, activities and research. At the end of the course, students will be able to produce effective music that supports the required film content.

MD3303 INTERACTIVE AUDIO
Interactive Audio applies computer programming concepts to create interactive music and audio systems. Using a programming environment optimized for creating music and audio applications, students are introduced to a variety of synthesisers and signal processors, as well as design and build their own interactive performance systems.

MD4011 WRITING ACROSS MEDIA PLATFORMS
This module introduces students to the different styles and forms of writing, and how to deliver key messages across different media platforms. Students will learn about journalistic writing, writing for online platforms, and how to deliver key messages across different markets. They will then be able to apply their skills in design thinking to propose strategies and tactics for a brand.

MD4018 ADVERTISING
This module gives students an overview of the advertising industry. Students are taught how to develop a strategy and a big idea in response to a brief, and implement a marketing campaign across different paid platforms. They will also be able to develop a budget and propose metrics to track the success of the campaign.

MD4305 QUALITATIVE RESEARCH
Students will learn qualitative research methods to better understand their target audiences. They will also learn how these principles are applied in advertising and communication.

MD4401 DIGITAL MARKETING
This module introduces students to the fundamentals of digital marketing. Students will understand how companies use social media to build rapport with their customers. They will also be able to use different digital advertising tools, as well as develop digital content for brand management.

MD4402 PUBLIC RELATIONS FUNDAMENTALS
This module teaches students how to distinguish Public Relations approaches from other communication options. Students will learn about different PR tools and formats. Students are also taught how sound textures and dynamics can be used to craft a marketing campaign across different paid platforms. They will also be able to develop a marketing campaign across different paid platforms.

MD4403 FINAL YEAR PROJECT
This is a capstone module that allows students to integrate and apply what they have learnt by conceptualising and developing an integrated marketing campaign for a client.

MD4505 FILMMAKING
This 45-hour module introduces students to filmmaking as a distinctive media platform that requires a different set of skills and techniques, in terms of storytelling, scripting and the business of moviemaking.
Synopses

**MD501**
WRITING ACROSS MEDIA PLATFORMS
Introduces students to the various platforms in the media world and how they have evolved. Students will examine the present way of communication. Students will be able to recognise the changing identity, preferences and habits of the consumer of the different media platforms. They will learn to craft stories and content for each medium/platform. The module will also take the student through the processes of conceptualising, crafting and developing an idea into media content that can cross different platforms, for the evolving media consumer.

**MD502**
DECONSTRUCTING TELEVISION
Provides students with a brief history of television and introduces them to the early television genres of drama, comedy, game shows and reality TV. Students will deconstruct popular television genres to appreciate the origins and how they have evolved to their present-day adaptations. Students will also create an original concept for a television programme.

**MD503**
STORY CLASSICS HEROES MYTHS AND LEGENDS
Exposes students to seminal works of literature in books and films, while exploring the classic fairy tales, heroes, myths and legends. Students will appreciate how the use of heroes, protagonists, antagonists, universal themes and issues that are key to creating and telling good stories. They will discover how often these elements are adapted to reflect the desires and preoccupations of the present society.

**MD504**
CREATIVE STORY MAKING
This module uses creative thinking, brainstorming and observation exercises to help students generate creative story ideas. Students will be taken through a journey of self-discovery, including their life experiences, the aptitudes of creativity and inspiration and uncover their potential as writers. They will apply what they have learnt about the appeal of myths, heroes and universal themes to craft engaging and powerful short stories.

**MD505**
STORYTELLING I: VISUAL COMMUNICATION
Teaches students the fundamentals of storytelling through visual communication. Students will investigate and learn the techniques to communicate visual and dramatic elements within a script, without the use of dialogue. They will also learn the basic principles of information design, visual design, layout and colour, as well as how picture composition, camera movements and cinematography are crucial for good storytelling.

**MD506**
STORYTELLING II: CONCEPTUALISATION AND STRUCTURE
Introduces conceptualisation and structure as crucial elements of good storytelling. It teaches students how to use plots and sub-plots to engage their audience, thereby further transforming their fictional characters into multi-dimensional ones that resonate with the audience. Students will also learn about the use of traditional and interactive narrative structures and create their own three-act story and multidimensional characters.

**MD507**
SCRIPTWRITING FOR TELEVISION I: ENTERTAINMENT PROGRAMMES
Introduces students to key entertainment genres in the television industry. It exposes students to the processes behind the conceptualisation, crafting and development of scripts related to these entertainment genres. It equips them with the knowledge and tools to write broadcast standard and industry-quality scripts. Students will receive core skills training in scriptwriting for genres such as reality, infotainment and talk shows. Students will also be taught how to conceptualise and craft scripts according to the purpose and context of television production for a range of target audiences.

**MD508**
VIDEO PRODUCTION PRINCIPLES AND PRACTICES
Introduces students to the entire digital video production process, from translating a script to the final product. Students will learn practical aspects of single camera techniques: basic lighting, audio recording, camera directing and video editing. This module also imparts to students a sound understanding of the entire production process from the breaking down of a script to production and post-production management, as they engage in multiple roles in the production cycle. Students will produce their own short video clip at the end of the module.

**MD509**
COMMUNICATION SKILLS FOR MEDIA MAKERS
Emphasises the importance of oral and written communication skills for media makers who need to network with media companies. Students will be trained to present and pitch effectively to media networks and production houses, write the different types of proposals needed for pitches to the media industry, as well as structure and deliver persuasive oral pitches and presentations, using appropriate verbal and non-verbal language and visual aids. They will also learn to handle the intense question and answer sessions associated with the media industry and hone their media networking skills in the process.

**MD510**
WORLD ISSUES AND THE MEDIA MAKER
Exposes students to the role of the media maker in shaping public views and opinions. Students will explore how the media maker is influenced by history, ideology and current affairs as a source of inspiration in producing media products such as articles, television programmes and films. Students will also be taught the influential role of philosophers in key world events, leading to current media products.

**MD511**
JOURNALISM I: NEWS WRITING FOR THE GLOBAL AUDIENCE
Stresses the importance of news in a globalised world and its impact on society, culture and politics. Students will be introduced to the basic elements and stages of news writing and be trained in news writing for print, television and the web. News research, investigation, accuracy and strong editorial skills will also be emphasised in this era of information overload.

**MD512**
JOURNALISM II: TOTAL JOURNALISM
Prepares students for the demands faced by journalists today. They must be capable of not just writing good stories, but also be proactively involved in the news sourcing, news gathering and news production stages. Students will be trained to deal with unforeseen and urgent situations and deadlines, create layout pages and caption pictures. Students will complete a news project from conceptualisation to final product, and in the process, develop their aptitude for news.

**MD513**
WEB PUBLISHING AND DESIGN
Aims to equip students with the basic principles in Web Publishing as well as Design Thinking techniques. Through Design Thinking, students will explore how a deep understanding of the user, find creative resolution to tensions, develop collaborative prototyping and modify ideas for web solutions. Students will experiment with tools of design, digital photography, imaging and layout. They will also manage plan and prepare electronic publications.

**MD514**
FILMMAKING
This 6-week module introduces screenwriting as a distinctive media platform that requires a different set of tools and techniques. In terms of storytelling, screenwriting and the business of moviemaking.

**MD515**
TELEVISION AND ONLINE JOURNALISM
Aims to hone the skills of journalism students for use in broadcast, online and print media and content, and adopt a proactive approach to media buyers and consumers. This module aims to develop students’ potential as media managers and entrepreneurs.

**MD516**
ON-LOCATION PRODUCTION
Trains students to produce a three-minute video report after an on-location shoot overseeing the entire video production process. Students will find a compelling story in an unfamiliar environment within a fixed duration. Students will be guided to prepare for the filming trip in which they will have to work as a production. They will have to make preparations such as research, equipment lists, production planning and timeline before the trip.

**MD517**
CREATIVE WRITING PROJECT
Students will write for broadcast media, for conceptualises, write script and pitch an original television and new media project to società media production houses, television networks and production companies. This is to showcase their strengths as media content writers and creators.
MD4001 DIGITAL PHOTOGRAPHY
This module aims to equip students with digital photography skills. The fundamental techniques are used to achieve good photographic images and composition will be taught to prepare student in their visual and concept development. The understanding of exposure, light quality and depth-of-field will enable the students to effectively translate their vision into all images of art. Studio lighting techniques and digital imaging skills will also be taught to give a broad learning exposure for the student.

MD4002 CREATIVE STORYTELLING
This module covers the strong foundational elements of storytelling which includes: theme, character perspective, setting, plot, and dialogue. It encompasses visual media such as short visual effects stories, drama, and film. Through a series of creative writing exercises, students practice developing stories with both words and images through storyboards.

MD4003 PRE-VIZ AND STORYBOARDING
This module aims to equip students with fundamental storyboarding and pre-visualisation skills to craft animations for film, video and motion graphics. Students will learn to use tools to plan lighting, camera placement, movement, stage direction and edit before they start production.

MD4004 MEDIA THEORY
This course will illustrate with screenings and combine discussions of both the history and practice of visual effects and motion graphics. The goal is to explore the rich opportunity visual effects and motion graphics offers to enhance story and the entertainment. Students will be introduced to foundational exercises in both the visual effects and motion graphics industry and analyze creative problem solving that went into the work and how it compares to what is done today.

MD4005 MOTION ANALYSIS AND TECHNIQUES
This module is designed to equip students with an ability to translate motion graphics theory to practice. Students will demonstrate an understanding of basic design principles as applied to motion graphics such as intonation, wave motion, laws of motion and principles of animation. Students will develop the ability to generate meaning through minimalism and abstraction.

MD4006 COMPOSING FOUNDATIONALS
This module aims to educate students on basic compositional skills used in the media industry. Students will be taught 2D and 3D compositional workflow and will apply compositional methods such as edge blending and de-splitting for green/blue screen. Skills learnt in this module can then be applied to other modules in the course.

MD4007 EFFECTS ANIMATION
Aims to introduce students to basic animation as part of such systems and dynamics simulation. Students will be exposed to the art and techniques of creating convincing effects and utilize the latest professional software and plug-ins to produce animation of fluids, cloth and explosions.

MD4003 SPECIAL EFFECTS
Introduces the fundamentals of creating props/set effects. Practical effects like smoke, lighting and effects make up. Students will learn how to create and project the model. The module focuses on the implementation of the scenic elements to establish a unified visual style for video production. Students get to research on a given topic and present their designs on live models or sets.

MD4004 DYNAMIC TYPOGRAPHY
In this class students will be introduced to strategies of visual communication through kinetic elements. Focusing on form, speed, rhythm, orientation, colour and quality of motion. Students will explore the expressive potential of typography in a variety of exercises dealing with digital typography and motion graphics. Students explore and experiment with typography in print, projected and unseen in motion. Through analysing contemporary and historical examples, such as film and TV titles, music videos, commercials, as well as exemplary typography work in print design students will develop their own potential for expression through dynamic typography. Each student will give a research presentation about a designer and discuss his or her contributions to design, animation, and typography.

MD4008 PRODUCTION FOR VISUAL EFFECTS
This module aims to train students to be competent in video production to support visual effects projects. It will expose them to video production techniques that smoothly transit into visual effects post-production processes and workflow. Students will be familiarised with the techniques and applications used in the visual effects industry including cinematography, lighting and digital imaging techniques (DIT). Students will produce their own videos integrating live action and CG elements based on the skills acquired from the module and perfect the final look of the video.

MD6001 3D ANIMATION
Aims to develop students’ critical understanding of a field of study related to visual effects and motion graphics and their capacity to pursue independent research, culminating in an assignment presentation which will gain an insight into their knowledge and competence in the chosen field of specialization.

MD6002 MOTION CAPTURE
Students will learn the basics of capturing full body and facial movements in the motion capture studio based on a live actor and apply this motion data to a rigged character. They will be able to take motion capture source file and convert it into a format that MotionBuilder natively understands, and then use that mocap data to create new and life-like animations quickly and easily.

MD6003 VISUAL EFFECTS STUDIO
Students will work in teams to produce visual effects clips. Students will learn to manage the entire visual effects pipeline from initial concept and development to final delivery. The processes include initial concept creation, storyboard presentation, shooting live action, matte painting, wire removal, rotoscoping, modelling, matching tracking, and composting. Students are required to provide the visual effects breakdown. The module will also include workshop on professional practices presentations and portfolio development to assist students in documenting and organizing their work for further studies or job opportunities.

MD6004 INDEPENDENT STUDY
This module aims to prepare final year students for the workforce by promoting active research and innovative solutions for production through projects.

MD7017 INTRODUCTION TO APPLIED DRAMA
Introduces students to the forms, methodologies and uses of Applied Drama. Students will learn about the history of such practices and their development both abroad and locally. Students will analyse and critique the practices of an applied drama practitioner / theatre company.

MD7042 LIFESPAN PSYCHOLOGY
Introduces students to a view of human development that examines the phases of life from birth to death. Students will be able to describe the physical, cognitive and socio-emotional aspects of human development. The course covers child, adolescent, adult and an elderly individual.

MD7021 DRAMA-IN-EDUCATION
Provides students with a broad overview of drama as it is used in the educational system in Singapore and introduces students to how drama is used as pedagogy in the classroom. Students will examine how practitioners use drama to promote holistic learning in the classroom and across the curriculum.

MD7020 THEATRE-IN-EDUCATION
Introduces students to the origins, principles, influences and evolution of Theatre-in-Education. Students will learn about the process of creating a Theatre-in-Education programme for a specific target group. From researching the issue, analysing the purpose and need for teachers' resource packs to devising and performing the piece.
synopse

MD7204 COMMUNITY PSYCHOLOGY
Introduces students to effective learning for learners in different contexts. Students will examine 'who is taught and how' something is taught. It also highlights the interactive nature of 'what is taught' and 'why' it is taught as well as the importance of assessment. The content of this module will incorporate aspects of Educational theories focusing on cognitive, psychosocial, socio-cultural and personality factors of learning.

MD7205 PSYCHOLOGY-IN-EDUCATION
Introduces students to the methods and techniques of educational psychology. This module will be co-taught by an applied drama lecturer and a psychology lecturer. This module will introduce students to the methods and techniques of educational psychology. This module will be co-taught by an applied drama lecturer and a psychology lecturer. In this module, students will understand contemporary developmental issues and challenges in youth (adolescence and emerging adulthood). This framework will be used to discuss how different media forms such as Participatory Photography and Participatory Video projects have been used for social outreach projects.

MD7206 FORUM THEATRE
Introduces students to the form of Forum Theatre as a method of theatre for training. This module will be co-taught by a drama and a psychology lecturer. Students will learn the principles and methods of Reminiscence Theatre, where memories often come from the earliest period of childhood. Students will also study the physical, social and emotional aspects of ageing and the impact on mindsets and behaviour in older adults as well as those around them. Students will develop a better understanding of the perspectives of older adults to effectively create a piece of Reminiscence Theatre.

MD7207 METHODS OF INQUIRY
Introduces students to the basic concepts of quantitative and qualitative research methods and report writing. Students will be equipped with basic skills of data collection, analyzing techniques such as observations, questionnaires, interviews and experiments. Students will design and conduct single research projects, analyze data and write up their findings according to a formal report format.

MD7208 WORKING WITH CHILDREN (STORY DRAMA & DEVELOPMENTAL ISSUES IN CHILDHOOD)
This module will be co-taught by an applied drama lecturer and a psychology lecturer. Students will learn the principles and practices of Story Drama where the elements of drama are used to explore written literature (for example, storybooks, poems and folktales). Students will also identify and debate important local and global developmental trends and issues in childhood. Students will design a story drama workshop for children and take into consideration how children progress in the areas of cognition, language and socio-emotional development.

MD7209 WORKING WITH YOUTH (PARTICIPATORY APPROACHES & ADOLESCENT PSYCHOLOGY)
This module will be co-taught by an applied drama lecturer and a psychology lecturer. In this module, students will understand contemporary developmental issues and challenges in youth (adolescence and emerging adulthood). This framework will be used to discuss how different media forms such as Participatory Photography and Participatory Video projects have been used for social outreach projects.

MD7303 GRANTS, PROPOSALS AND EVALUATION
Introduces students to non-profit organisations in the arts and community services sectors. Students will be introduced to funding and grants available for projects that serve these sectors. Students will be required to put together a proposal for an organization for funding. The module aims to provide students with a critical understanding of the fundamentals of project management and proposal writing.

MD8101 VISUAL DESIGN STUDIO
This module offers a focused study of graphic design and the application of graphic design communications. Building upon their foundational understanding in graphic design, students will hone their sensitivity and creativity in typography and colour to formulate emotionally resonant visual solutions for effective communication. Students will learn the framework and strategies of infographics design.

MD8102 2D MOTION GRAPHICS
This module aims to deliver a practical approach to designing moving images for graphic communication solutions. Students will learn to create 2D motion graphics as a medium for design expression. Through studio sessions students are encouraged to explore key concepts and processes, such as ideation, storyboarding, graphical illustration, animation, audio insertion and presentation techniques. These skill sets are intended for use in the creation of music videos, titles, treatments and other graphics for broadcast, film, web and advertising.

MD8103 DIGITAL PHOTOGRAPHY & IMAGE PROCESSING
This module exposes students to the theory and practice of digital photography within the framework of an integrated digital workflow, including the finer points of digital image enhancement. Students will be taught product and portrait photography and learn the essentials of controlling and balancing artificial lights with natural light to achieve impactful aesthetics for photography. Students will focus on studio imaging techniques and be equipped with the fundamentals of preparing digital images and advanced techniques in post-production. By the end of the module, students would have created a portfolio of photographic fine prints for commercial applications.

MD8104 DIGITAL ARTS STUDIO
This module exposes students to key techniques, industry standard tools, and process to apply digital imaging into graphic and advertising outcomes. Students will be exposed to in-depth understanding and industry standard software applications for training. Integrating creativity and conceptualisation skills, students will be trained to gain insights into how local and global socio-cultural changes impact on society’s approach to social issues.

MD8105 PORTFOLIO DESIGN
This module equips students with the skills to assemble a package to aid them in their post-polytechnic placement in the industry, and the required skills to market themselves suitably to potential employers. Students will have their personal branding differentiated and articulated, and their works archived on a chosen platform creatively. They will also be trained to present themselves professionally at interview sessions, and identifying opportunities through industry networking.

MD8106 VIDEOS FUNDAMENTALS
This module exposes student in the theory and practice of digital video production. Students are taught video camera techniques, audio capture techniques, non-linear editing software and techniques in both video and audio and learn the essentials of controlling and balancing artificial lights with natural light to achieve impactful aesthetics for videoography. Students will focus on pre-production, production and post-production, and be equipped with the fundamentals to prepare digital video in various formats for different platforms. By the end of the module, students will be expected to create a show reel of commercially viable work.

MD8107 THERMO-FLOWS I
Introduces the fundamentals of thermodynamics, namely heat, work, perfect gas laws and the 1st law of thermodynamics. Use of steam tables, basics of pressure and flow rate in pipes and the mass conservation law are also covered.

MD8108 THERMO-FLOWS II
Provides further knowledge on the fundamentals of Thermodynamics with particular applications in air compressors, gas and vapour cycles.

MD8109 IN-VEHICLE SYSTEMS
Covers the requirements, design and operations of the sub-systems found in land vehicles. Topics include the air supply and air conditioning systems, safety system and electrical wiring system.

MD8110 REFRIGERATION AND AIR-CONDITIONING
Covers the requirements, design and operations of the sub-systems found in land vehicles. Topics include the air supply and air conditioning systems, safety system and electrical wiring system.

MD8111 URBAN TRANSPORTATION DESIGN
Covers the structural design of land transportation vehicles. Application ranges from the chassis of the personal mobility device to the complex structures and mechanisms of a rapid transit system. Design topics covered include the car body, coupler and rapid transit trains.

MD8201 COMPUTER AIDED DRAFTING
Introduces the use of computer-aided drafting (CAD) software to prepare mechanical engineering drawings. Topics include blue print reading, orthographic projection, sectioning, assembly drawing and basic solid modelling.

MD8202 ENGINEERING DESIGN AND PROTOTYPING
Applying the Thinking process to create new and innovative products or services. It also provides a platform to integrate theoretical knowledge from other modules by designing, testing and building practical and interesting projects. Teamwork, creativity, critical thinking and presentation skills are emphasised.

MD8203 DIGITAL ARTS STUDIO
This module exposes students to key techniques, industry standard tools, and process to apply digital imaging into graphic and advertising outcomes. Students will be exposed to in-depth understanding and industry standard software applications for training. Integrating creativity and conceptualisation skills, students will be trained to gain insights into how local and global socio-cultural changes impact on society’s approach to social issues.

MD8204 URBAN TRANSPORTATION DESIGN
Covers the structural design of land transportation vehicles. Application ranges from the chassis of the personal mobility device to the complex structures and
AERONAUTICAL ENGINEERING SCIENCE
Introduces the principles of flight governing heavier than air flying machines. Topics include properties of the atmosphere, development of aerodynamic forces and moments, aircraft performance, and aircraft stability and control. High speed rotary wing flights are also taught.

WIND ENERGY SYSTEMS
This module covers the fundamentals of wind energy as used in electricity generation. It includes wind measurement, aerodynamics, loads on turbine blades, power generation, resource allocation, and environmental impact. It will provide students with knowledge of sitting of wind turbines and the use of wind energy for electricity generation.

INDUSTRIAL ENGINEERING
Provides knowledge and skills in the basics of industrial engineering. Topics include work study, enterprise resource planning, scheduling and ergonomics. Concepts and techniques are also taught through hands-on practical sessions.

INTRODUCTION TO ENGINEERING
Aims to promote interest in engineering by introducing the interdisciplinary nature of engineering systems and their manufacturing processes to the students. The students will acquire the skills for generating ideas using the Design Thinking framework on aircraft maintenance and their projects are presented based on the works of builders from China. After studying the design and development of aerodynamic forces and moments, aircraft performance, and aircraft stability and control, high speed rotary wing flights are also taught.

COMPUTER-AIDED MACHINING
Provides knowledge of computer-aided machining in milling and turning, including process planning techniques, machine coding and operational instructions. Training includes producing precision components.

COMPUTER-AIDED MACHINING (AERONAUTICAL)
Imparts CAD skills using CATIA, the defacto software used in the aerospace industry. Topics include solid modelling, surface modelling and sheet metal design in aerospace. Aircraft and assembly drawings are also generated.

ENGINEERING MECHANICS II
Continues from Mechanics I. Teaches how to solve problems or design fixtures for mechanical systems behind these artefacts, including properties of the atmosphere, development of aerodynamic forces and moments, aircraft performance, and aircraft stability and control. High speed rotary wing flights are also taught.

AIRCRAFT POWER PLANTS I
Introduces the working principle and construction of a jet engine. Topics include fuel and oil systems, thrust reverser, ignition, starting, engine instrumentation, controls and engine operations, and auxiliary power units.

RENEWABLE ENERGY AND APPLICATIONS
Provide an understanding and practical knowledge of renewable energy and its applications. Topics include solar energy, wind energy and tidal energy.

FLUID MECHANICS
Provides knowledge on fluid flow and piping systems, centrifugal and positive displacement pumps as well as industrial hydraulics.

CONTAMINATION CONTROLS & CLEAN ROOM
Provides knowledge about contamination control and cleanroom technology, and the pharmaceutical cleanroom classifications. Topics include basic design of various cleanliness classes, pressure differential, airlocks, entry and exit protocol, and aseptic processing.

AEROSPACE MATERIALS
Provides an understanding of factors governing the selection of materials for the various aircraft structural members and engine components. Topics include extraction, production and fabrication of advanced materials such as aluminum alloy, titanium alloy, super alloys and ceramics.

AEROSPACE MATERIALS
Deals with the design of product and workshop to suit human dimensions and includes sustainability and environmental impact. Product form and function are optimised with anthropometry, inclusive design concepts and sustainable/green considerations.

ENGINEERING THERMODYNAMICS
Provides further knowledge of steam cycles and gas turbine cycles, steam nozzles and heat transfer.

AIRCRAFT POWER PLANTS II
Introduces the working principle and construction of a jet engine. Topics include fuel and oil systems, thrust reverser, ignition, starting, engine instrumentation, controls and engine operations, and auxiliary power units.

BIOFLUIDS
Covers physiology of the circulatory and pulmonary systems with engineering of fluid mechanics. Major topics include blood flow, mechanisms of heart and its valves, hemodynamics and regulation of organ blood flow, air flow in lungs, microcirculation, and common disorders and medical devices associated with the two body systems.

AIRCRAFT SYSTEMS
Provides an understanding of aircraft systems. Topics include pumps, compressors, landing gear, flight control, air conditioning, pressurisation, fire/oxide/ ice/ram protection, fuel, water and waste.
ME3601 PROGRAMMABLE LOGIC CONTROLLERS
Provides fundamental concepts and examples to understand the operation and capabilities of programmable logic controllers as an important tool for factory automation. Simple control strategies using ladder diagram are implemented.

ME3602 ROBOTICS INTEGRATION AND PROGRAMMING
Introduces the basics of robot hardware, software and their integration. Topics include micro-controller, display components, actuators and sensors. Students will get to design, build and test an autonomous robot system.

ME3901 QUALITY ENGINEERING AND MANAGEMENT

ME3902 QUALITY MANAGEMENT (AERONAUTICAL)
Provides basic concepts of quality management. ISO 9001:2008 Quality Management System and techniques of inspection and quality improvement.

ME3903 HUMAN FACTORS
Imparts the concepts of human factors that affect people in aviation and aircraft maintenance applications including error management techniques to reduce human error mishaps.

ME3831 SYSTEM INTEGRATION
Introduces the principles of system integration. Teaches how human and machines are interface using logic controllers, sensors and motion systems.

ME9001 FACILITIES MAINTENANCE ENGINEERING AND SERVICES
Examines the mechanical principles of thrill-experience activities in resorts. Typical facilities include vertical transportation, lighting, water supply and sanitation. Maintenance of joy rides, life safety concepts and energy monitoring are taught with emphasis on environmental considerations.

ME3208 PRODUCT DESIGN AND REALISATION
Provides a range of skills and techniques for creative product design and realisation. Topics include foundation knowledge in product design such as Design Thinking, principles of 3D Design and the use of computer tools for product visualisation. Presentation of design in appropriate format is taught using advanced Photoshop techniques.

ME202 WORKPLACE SAFETY & HEALTH MANAGEMENT
Provides an understanding of the safety and risk management inherent in resorts and in mega buildings. The Workplace Safety and Health Act, related statutory legislations, risk assessment and hazards analysis are covered.

ME303 CMP AND MEDICAL DEVICE VALIDATION
Introduces current Good Manufacturing Practice in the design and manufacturing of medical devices and pharmaceuticals. Intellectual property protection, patent filing, FDA and related regulatory guidelines are covered with emphasis on noncompliance implications.

MD0017/Z DESIGN THEORY AND RESEARCH 1
This module aims to inculcate basic skills of critical analysis, reading, writing and research for first year design stream courses. Using a set of design lenses as critical and theoretical building blocks, students will learn to apply theoretical ideas to augment their conceptual idea, to build design arguments and evaluate design propositions through reflections, presentations and writing and understand the foundations of design conceptualisation and thinking.

MD0027/Z DESIGN THEORY AND RESEARCH 2
This module aims to develop students critical and analytical skills with various design lenses in the research and study of technological, social, political, historical, cultural and economic aspects. This inquiry allows students to comprehend the influences and impacts that these factors can catalyse design propositions.

MD0037/Z DESIGN THEORY AND RESEARCH 3
This module aims to explore and challenge design methodologies, forms and practices. This allows the students to employ the theories in their final year project with the intent to espouse their design propositions.

MM9208 MACHINE ELEMENTS AND MECHANISMS DESIGN
Introduces the application of limits and fits, geometrical dimensioning and tolerances for controlling size and form of parts to meet design functions. Topics include design and selection of standard engineering machine elements such as locating and fastening devices, bearing, gear-driven shafts and chain-drives required in mechanical systems.

MM9200 INDUSTRIAL AUTOMATION
Provides the fundamental knowledge and hands-on skills in pneumatic relay control system and Programmable Logic Controller (PLC) relevant to the local industries. Topics included will develop the ability to design and assemble automatic control circuits.

MM9101 THE AERIAL LINE INDUSTRY
This module aims to equip students with the basic understanding of the of the infrastructure and how difficult aviation scenarios could be managed. This module also provides students with fundamental knowledge of management concepts that are essential in capitalising on the benefits of business transportation.

MM6104 TERMINAL OPERATIONS & MANAGEMENT
This module discusses the challenges of running a competitive airport terminal and difficulties faced by airport operators and their ground handling agents.

MM9105 RAMP OPERATIONS AND MANAGEMENT
This module focuses on the complexities of the airport environment as well as how to better manage airport operations and safety.

MM9101 COMPUTER-AIDED DRAFTING
This module provides the knowledge of interpreting and preparing engineering drawing of mechanical parts based on ISO Standard recommendations. The module will provide students with knowledge in blue print reading, orthographic projection, sectioning and dimensioning of mechanical components and parametric modeling of mechanical devices which are key elements of engineering graphics communication. Participants will be able to use Computer-Aided Drafting & Design (CADD) software to create parametric solid models of mechanical parts.

MM9302 MECHANICS OF MACHINE ELEMENTS
Introduces the analysis of stress and strain in bodies under static equilibrium and basic dynamics. Applications include the design of machine and structural elements.

MM9303 INSTRUMENTATION AND CONTROL
Provides fundamental knowledge of instrumentation, control theory and basic practical knowledge on process control applications relevant to the local industries. At the end of the course, students will have some basic skills on the design and maintenance of industrial process control systems.

MM9304 THERMOFLUID SYSTEMS
Provides working knowledge in Thermodynamics and Fluid Mechanics. Topics covered include fluid mechanics, perfect gas and steam. The module is practiced based and lectures are supplemented by comprehensive tutorials. Hands-on laboratory classes reinforce concepts and develop robust practical skill sets.

MM9103 THERMOFLUID POWER
Provides fundamental knowledge and basic principles in the second law of thermodynamics. Analysis of dynamic power cycles, air compressors, conservation of momentum and conservation of energy. Handson laboratory classes reinforce concepts and develop robust practical skill sets.

MM9304 ENGINEERING THERMOHYDRAULICS
Provides basic concepts on heat transfer, combustion, steam nozzles, steam turbine cycles and gas turbine cycles. Key concepts and principles identified in lectures are consolidated by descriptive and calculation questions in tutorials.

MM9400 STATICS AND DYNAMICS
Provides basic concepts in applied mechanics. Topics include units and dimensions, equilibrium conditions, friction, kinematics and Newton’s laws of motion.

MM9401 MECHANICS OF MATERIALS AND MACHINES
Continues from Machine Elements and Mechanisms Design. Topics include direct stress and strain, bending, torsion, moment of inertia, work and power. Applications include simple engineering structures and lifting machines.

MM9402 ENGINEERING MATERIALS
Introduces basic properties and applications of general engineering materials such as steel, cast iron, aluminium, copper, thermo-setting and thermo-plastics. Practical skills include practical testing, common Non-Destructive Testing (NDT), metallographic techniques, heat treatment of metallic materials and casting processes.

MM9500 CNC TURING TECHNOLOGY
Provides working knowledge of CAD/CAM programming and CNC machining for turning. Selection of appropriate machining parameters to achieve part specifications will be discussed.

MM9501 CNC MILLING TECHNOLOGY
Provides working knowledge of CAD/CAM programming and CNC milling. Selection of appropriate machining parameters to achieve part specifications will be discussed.
will impart the necessary skills to analyse data analysis, professional presentations analysis for business applications. Topics features of spreadsheet to support data analysis. MS1522 BASIC MATHEMATICS Provides students with basic mathematical knowledge and skills in algebra, trigonometry and calculus to enable them to understand and solve engineering problems encountered in their courses of study. It also serves as a foundation for subsequent mathematics modules.

MS2216 ENGINEERING MATHEMATICS II Provides students with further knowledge in mathematics and analytical skills to solve engineering problems encountered in their studies. Among the topics covered are calculus, ordinary differential equations and Laplace transforms.

MS2320 ENGINEERING MATHEMATICS I Equips students with the necessary mathematical knowledge and skills in algebra, trigonometry and calculus to enable them to understand and solve engineering problems encountered in their course of study. It also serves as a foundation for more advanced mathematics in Year 2. Topics include: determinants, matrices, complex numbers and calculus.

MS3123 ENGINEERING MATHEMATICS II Builds upon the mathematical knowledge and skills acquired in Year 1. Topics covered are inferential statistics, partial differentiation, solving of first and second order differential equations, and their applications. Students also learn how to use statistical software.

MS3215 BASIC MATHEMATICS Equips students with the basic mathematical knowledge and skills in algebra, trigonometry and calculus to enable them to understand and solve engineering problems encountered in their course of study. It also serves as a foundation for subsequent mathematics modules.

MS4215 ENGINEERING MATHEMATICS II Provides students with further knowledge in mathematics and analytical skills to solve engineering problems encountered in their studies. Among the topics covered are calculus, ordinary differential equations and Laplace transforms.

MS4402 PHYSICS This module aims to provide students with broad based physics knowledge relevant to their course of study in electrical engineering. The topics covered include: mechanics, thermal physics, waves, electricity and magnetism.

MS5941 ENGINEERING MATHEMATICS Provides students with essential mathematical techniques for solving problems in electrical engineering. Emphasis is placed on numerical methods, practical applications. Topics covered include: various transform methods, matrices, descriptive statistics, hypothesis testing, vector algebra, numerical methods of solving differential equations, difference equations.

MS6215 STATISTICS AND ANALYTICS FOR ENGINEERS Provides students with an introduction to statistical and data analytics concepts to solve engineering problems encountered in their studies. Among the topics covered are descriptive statistics, probability distributions of discrete and continuous random variables, sampling distributions, statistical estimation, regression, predictive modelling and clustering. Students will learn to use statistical and data analytics software tools to perform analysis.

MS7141 MATHEMATICS I Provides students with mathematical skills, knowledge and creativity required for their present course of study. Topics covered include basic algebra, geometry, trigonometry, plane and spherical triangles and their applications.

Synopses

Singapore Polytechnic Prospectus 2019/20
Singapore Polytechnic Prospectus 2019/20
This module aims to equip students with good knowledge of the underlying theory, assumptions and complex and sophisticated spreadsheet applications and increase work efficiency. They will learn how to deal with various types of data using simple linear models for heteroscedastic data, model diagnostics, adequacy, comparison and building techniques as well as essentials of statistical simulation. Students will also be exposed to ideas of experimental design and system optimization in modelling work.

**M59005 ADVANCED MODELLING AND FORECASTING**

This module aims to equip students with a greater breadth of skills in Predictive Analytics. It aims to build predictive analytics skills in the modelling of (i) data with nonzero-Gaussian distributions, (ii) data of Gaussian but heteroscedastic structure, (iii) categorical data and (iv) time-series data. Topics covered in the module include predictive models with a focus on Poisson and Gamma data. Heteroscedastic regression with a focus on the Generalised Least Squares approach. Generalised estimating equations, analysis of categorical data with models for nominal and ordinal responses. The last part of the module focuses on analysis of time series data and discusses smoothing techniques, linear stationary and non-stationary models, model identification, estimation, diagnostics and forecasting.

**M59006 FOUNDATION MATHEMATICS**

This module aims at equipping students with basic mathematical knowledge that would be useful and relevant for a wide range of applications in their course of studies. The topics covered include algebra, trigonometry, geometry, matrices and differential equations. Students will also be taught to solve problems through the use of graphing and statistical software. The emphasis is on understanding the underlying theory, assumptions and complex and sophisticated spreadsheet applications and increase work efficiency.
INTRODUCTION TO DRAMA AND PERFORMANCE
Introduces students to foundational performance skills and techniques such as acting, directing, and stage management. Students will experience being part of a theatre ensemble either as an actor and/or a director.

UNDERSTANDING RESEARCH AND ETHICS
Introduces students to the concept of ethics and research. Students will examine the ethical practices in applied drama work and in psychological research. They will learn the basic theories and practices of different forms of research.

Drama-in-education
Can drama exist in the Singapore classroom? In this module, students learn how to incorporate drama into teaching to make learning come alive in the classroom by creating lesson plans for pupils of different ages and for different subjects.

SOCIAL PSYCHOLOGY
Provides students with an overview of theories, methods and ethical concerns related to social contexts of an individual’s behaviour. Students will be able to apply social psychology theories and concepts to interpret and explain individual human behaviour across social situations.

THEATRE IN EDUCATION
Theatre-in-Education is more than just putting up plays at assemblies. Who decides on the content? Do plays have to be performed in the school hall? What happens after the play? From planning to execution, students will learn how to use performance as a platform to teach. They will also learn to create post-performance materials to help their participants learn.

CULTURAL DIVERSITY
Students will learn about the diversity of races, cultures and religions in Singapore and understand the importance of cross-cultural differences in the society. They will gain an understanding of how basic psychological processes may vary across cultures. Students will explore the influence of cultural traditions and customs in shaping social behaviour in Singapore.

PROCESS DRAMA
Introduces students to the principles of Process Drama, a method of teaching where the teacher and student are working in and out of role. Students will develop skills in planning, implementing and evaluating process drama lessons for participants of specific age groups and learning needs. They will also work through practical sessions and projects.

COMMUNITY PSYCHOLOGY
Students will explore physical, social and mental health issues within communities of individuals. The field of community psychology thus focuses on the quality of life of individuals, communities, and society. Its aim is to enhance quality of life through collaborative research, education and intervention. The module will allow students opportunities to explore a range of theoretical and practical perspectives.

PSYCHOLOGY-IN-EDUCATION
Students will explore effective learning for different learners through different contexts. They will examine ‘who is taught’ and ‘how something is taught’. It also highlights the interactive nature of ‘what’ is taught and ‘why’ it is taught as well as the importance of assessment. The content of this module will incorporate aspects of educational theories focusing on cognitive, psychosocial, sociocultural and personality factors of learning.

GRADUATION PROJECT
Focuses on researching, conceptualising, planning and facilitating an Applied Drama programme for a target audience. Students will get the chance to research, devise and facilitate a relevant programme for a community to educate, communicate and intervene.

FORUM THEATRE
Introduces students to the form of Forum Theatre as a method of theatre for intervention. They will use Forum Theatre as a responsible tool to facilitate thought and action. Students will create and perform their own original Forum Theatre play.

METHODS OF INQUIRY
Introduces students to the basic concepts of qualitative and quantitative research methods and report writing. Students will be equipped with basic skills of data collection using techniques such as observation, interviews, surveys and experiments. Students will design and conduct simple research projects, analyse data and write up their findings according to a formal report format.

CHILDREN ELECTIVE - STORY DRAMA & DEVELOPMENTAL ISSUES IN CHILDHOOD
This module will be co-taught by an applied drama lecturer and a psychology lecturer. Students will learn the principles and practices of Story Drama where the elements of drama are used to explore written literature (for example, storybooks, poems and folktales). Students will also identify and debate important local and global developmental trends and issues in childhood. Students will design a story drama workshop for children and take into consideration how children progress in the areas of cognition, language and socio-emotional development.

YOUTH ELECTIVE - PARTICIPATORY VIDEO & ADOLESCENT PSYCHOLOGY
This module will be co-taught by an applied drama lecturer and a psychology lecturer. Students will learn the principles and practices of Participatory Video, where video-making is used as a tool to help communities explore issues, voice concerns or tell stories. Students will also examine issues related to adolescence like maturity in the body, sexual activities, teenage pregnancy and drug and alcohol use. Students will produce their own short video that addresses an issue that concerns adolescents, considering the cognitive and socio-emotional issues pertaining to adolescents.

ELDERLY ELECTIVE - REMINISCENCE THEATRE & PSYCHOLOGICAL PERSPECTIVES IN AGING
This module will be co-taught by an applied drama lecturer and a psychology lecturer. Students will learn the principles and practices of Reminiscence Theatre, where memories (often from the elderly) form the basis of performances. Students will also study the physical, social and emotional effects of ageing and the impact on minds and bodies of older people as well as those around them. Students will develop a better understanding of the perspectives of older adults to effectively create a piece of Reminiscence Theatre.

DRAMA CONVENTIONS
Students will be taught different drama conventions that are commonly used in Applied Drama. Practical sessions on the integration of these techniques within specific Applied Drama forms will be held in this module.

INTERNSHIP
Provides students with opportunities to gain professional experience working with social service organisations, educationrelated companies and other community development agencies. This is a 17 week internship programme and students will get a chance to put their applied drama skills and/or psychology knowledge to good use.

GRANTS, PROPOSALS AND EVALUATION
Introduces students to non-profit organisations in the arts and community services sectors. Students will be introduced to funding and grants available for projects that serve these sectors. Students will be required to put together a proposal and for funding/grant for a hypothetical applied drama project.

INTRODUCTION TO APPLIED DRAMA
Introduces students to the forms, methodologies and uses of Applied Drama. Students will learn about the history of such practices and their development both abroad and locally. Students will analyse and critique the practices of an applied drama practitioner / theatre company.

DEvised DRAMA
In Devised Drama, students get to create a piece of theatre then present it to a live audience. They are encouraged to think about and communicate their ideas through the conceptualisation, scripting, directing, performing and making/creating of a short film. Students will also be introduced to the world of integrated marketing communication and the role of an applied drama practitioner / theatre company.

COMMUNICATION IN ACTION
Introduces students to the world of communication through activity-based learning, field trips, guest lectures and case studies. It also introduces them to the careers that lie ahead and gives them the opportunity to interact with industry professionals.

LIFESPAN PSYCHOLOGY
Introduces students to a view of human development that examines the phases of life from conception to death. Students will be able to describe the physical, cognitive and socioemotional aspects of human development - as a child, adolescent, adult and an elderly individual.

HISTORY OF FILM
This module examines the history of film. It aims to give students a broad understanding of the social, political, economic and technological influences affecting film and the film industry. It also explores the relevance of these factors to the Singaporean context.

SCRIPTWRITING FOR FILM
Introduces screenwriting as a distinctive media form that requires a different set of skills and techniques in terms of storyboarding, scripting format and the business of movie-making.

DIRECTING FOR FILM
Highlights the role of the director in the filmmaking process. Students will learn the practicalities of interpreting a script, storyboarding, casting, directing actors, camera shots, camera movements, blocking a scene and cinematography.

PROJECT
Aims to give students a hands-on experience of the film production process. It develops in students the necessary critical and independent learning abilities through the conceptualisation, scripting, directing, filming and editing of a short film.

INTEGRATED MARKETING COMMUNICATION IN ACTION
Introduces drama lectures to the world of Integrated Marketing Communication through activity-based learning, field trips, guest lectures and case studies. It also introduces them to the careers that lie ahead and gives them the opportunity to interact with industry professionals.
Synopses

Aims to provide students with an overview of the business environment they will be working in. Students will have hands-on practice with different forms of writing, from professional writing, creative writing, TV writing, and digital writing. Students will also learn how to make good presentations and pitches, and how to perform well at an interview.

INTRODUCTION TO BUSINESS

SC774Y/Z

Focuses on communication in the workplace, with special emphasis on the marketing communication industry. Students will have hands-on practice with different forms of writing, from professional writing, creative writing, TV writing, and digital writing. Students will also learn how to make good presentations and pitches, and how to perform well at an interview.

SC772Y/Z

VISUAL COMMUNICATION

Aims to provide students with practical, technical skills for different media applications with emphasis on clarity of communication and the importance of consistent visual branding. Students will also learn to create, refine, implement and present their concepts.

VIDEO PRODUCTION AND DIGITAL POST

Introduces students to the theory and practice of video production and digital post techniques for communication purposes. They will be able to perform the different tasks in the video production process. Learn to create a story and plan the concept. They will learn to produce and edit their videos in digital format.

HUMAN MIND AND BEHAVIOUR

Offers an introduction to psychology as a discipline that explores different approaches to the scientific study of human behaviour. Students will learn to develop different perspectives on human behaviour. They will demonstrate an understanding of the major areas and themes in psychology, namely the biological, cognitive, developmental, social and abnormal. In addition, they will gain insight into how the knowledge of psychology can be useful in everyday life.

PUBLIC RELATIONS

Introduces students to how relationship building in the PR profession extends to Integrated Marketing Communication. Students learn and understand the importance of building and managing relationships with the various publics such as government, investors, employees and customers. Students will be able to plan, manage and evaluate PR programmes and develop their own PR strategies.

ADVERTISING

Introduces students to the knowledge and skills required for key areas in the advertising profession: account management and advertising campaigns. Students are given an overview of the advertising industry and are taught client servicing as well as account management skills. Students also learn to produce and manage successful advertising campaigns as part of Integrated Marketing Communication, in order to build and manage brands.

CONSUMER PSYCHOLOGY

Introduces students to consumer behaviour from a psychological perspective. They will be given an opportunity to explore habits and preferences of various consumer groups. The role of psychological processes in influencing one’s reaction to consumer goods and services as well as its implications for advertising, marketing research and public opinion polling will also be addressed.

MEDIA PSYCHOLOGY

Introduces students to a basic understanding of how people perceive, interpret, use, and respond to a media-rich world, so as to identify potential benefits and problems and to promote the development of positive media. The focus of this module will be on the impact of media on society. Issues covered will include conflict in media, media effects on self and society, communication and cross-cultural issues.

FINAL YEAR PROJECT

SC775Y/Z

STUDENT INTEGRATED MARKETING COMMUNICATION AGENCY

In the Student IMC Agency, students take on the role of IMC practitioners. They will work on a real-life project and will be guided in the process of IMC strategy development, research and situational analysis to the implementation and evaluation of an IMC campaign. This module lays the foundation for students to understand and apply Design Thinking to the IMC challenge in order to develop solutions enriched with deep user insights and strong concept visualisation. Students will also be able to build a portfolio of their work.

RADIO AND TV PRODUCTION AND MANAGEMENT

Introduces students to advanced production and recording techniques for television and radio, including TV studio recording and multitrack audio recording. Students will also be introduced to the basic concepts for television and radio programming, promotions and broadcast operations.

NEWS AND FEATURE WRITING

Teaches students to write news and feature articles for print, broadcast and online media. Students will learn the principles of good writing, information gathering and interview techniques.

PUBLIC RELATIONS

Introduces students to how relationship building in the PR profession extends to Integrated Marketing Communication. Students learn and understand the importance of building and managing relationships with the various publics such as government, investors, employees and customers. Students will be able to plan, manage and evaluate PR programmes and develop their own PR strategies.

ADVERTISING

Introduces students to the knowledge and skills required for key areas in the advertising profession: account management and advertising campaigns. Students are given an overview of the advertising industry and are taught client servicing as well as account management skills. Students also learn to produce and manage successful advertising campaigns as part of Integrated Marketing Communication, in order to build and manage brands.

CONSUMER PSYCHOLOGY

Introduces students to consumer behaviour from a psychological perspective. They will be given an opportunity to explore habits and preferences of various consumer groups. The role of psychological processes in influencing one’s reaction to consumer goods and services as well as its implications for advertising, marketing research and public opinion polling will also be addressed.

MEDIA PSYCHOLOGY

Introduces students to a basic understanding of how people perceive, interpret, use, and respond to a media-rich world, so as to identify potential benefits and problems and to promote the development of positive media. The focus of this module will be on the impact of media on society. Issues covered will include conflict in media, media effects on self and society, communication and cross-cultural issues.

FINAL YEAR PROJECT

SC775Y/Z

STUDENT INTEGRATED MARKETING COMMUNICATION AGENCY

In the Student IMC Agency, students take on the role of IMC practitioners. They will work on a real-life project and will be guided in the process of IMC strategy development, research and situational analysis to the implementation and evaluation of an IMC campaign. This module lays the foundation for students to understand and apply Design Thinking to the IMC challenge in order to develop solutions enriched with deep user insights and strong concept visualisation. Students will also be able to build a portfolio of their work.

RADIO AND TV PRODUCTION AND MANAGEMENT

Introduces students to advanced production and recording techniques for television and radio, including TV studio recording and multitrack audio recording. Students will also be introduced to the basic concepts for television and radio programming, promotions and broadcast operations.

NEWS AND FEATURE WRITING

Teaches students to write news and feature articles for print, broadcast and online media. Students will learn the principles of good writing, information gathering and interview techniques.

PUBLIC RELATIONS

Introduces students to how relationship building in the PR profession extends to Integrated Marketing Communication. Students learn and understand the importance of building and managing relationships with the various publics such as government, investors, employees and customers. Students will be able to plan, manage and evaluate PR programmes and develop their own PR strategies.

ADVERTISING

Introduces students to the knowledge and skills required for key areas in the advertising profession: account management and advertising campaigns. Students are given an overview of the advertising industry and are taught client servicing as well as account management skills. Students also learn to produce and manage successful advertising campaigns as part of Integrated Marketing Communication, in order to build and manage brands.

CONSUMER PSYCHOLOGY

Introduces students to consumer behaviour from a psychological perspective. They will be given an opportunity to explore habits and preferences of various consumer groups. The role of psychological processes in influencing one’s reaction to consumer goods and services as well as its implications for advertising, marketing research and public opinion polling will also be addressed.

MEDIA PSYCHOLOGY

Introduces students to a basic understanding of how people perceive, interpret, use, and respond to a media-rich world, so as to identify potential benefits and problems and to promote the development of positive media. The focus of this module will be on the impact of media on society. Issues covered will include conflict in media, media effects on self and society, communication and cross-cultural issues.

FINAL YEAR PROJECT

SC775Y/Z

STUDENT INTEGRATED MARKETING COMMUNICATION AGENCY

In the Student IMC Agency, students take on the role of IMC practitioners. They will work on a real-life project and will be guided in the process of IMC strategy development, research and situational analysis to the implementation and evaluation of an IMC campaign. This module lays the foundation for students to understand and apply Design Thinking to the IMC challenge in order to develop solutions enriched with deep user insights and strong concept visualisation. Students will also be able to build a portfolio of their work.

RADIO AND TV PRODUCTION AND MANAGEMENT

Introduces students to advanced production and recording techniques for television and radio, including TV studio recording and multitrack audio recording. Students will also be introduced to the basic concepts for television and radio programming, promotions and broadcast operations.

NEWS AND FEATURE WRITING

Teaches students to write news and feature articles for print, broadcast and online media. Students will learn the principles of good writing, information gathering and interview techniques.

PUBLIC RELATIONS

Introduces students to how relationship building in the PR profession extends to Integrated Marketing Communication. Students learn and understand the importance of building and managing relationships with the various publics such as government, investors, employees and customers. Students will be able to plan, manage and evaluate PR programmes and develop their own PR strategies.

ADVERTISING

Introduces students to the knowledge and skills required for key areas in the advertising profession: account management and advertising campaigns. Students are given an overview of the advertising industry and are taught client servicing as well as account management skills. Students also learn to produce and manage successful advertising campaigns as part of Integrated Marketing Communication, in order to build and manage brands.

CONSUMER PSYCHOLOGY

Introduces students to consumer behaviour from a psychological perspective. They will be given an opportunity to explore habits and preferences of various consumer groups. The role of psychological processes in influencing one’s reaction to consumer goods and services as well as its implications for advertising, marketing research and public opinion polling will also be addressed.

MEDIA PSYCHOLOGY

Introduces students to a basic understanding of how people perceive, interpret, use, and respond to a media-rich world, so as to identify potential benefits and problems and to promote the development of positive media. The focus of this module will be on the impact of media on society. Issues covered will include conflict in media, media effects on self and society, communication and cross-cultural issues.
SC8108 VIDEO PRODUCTION PRINCIPLES AND PRACTICES
Introduces students to the entire digital video production process, from translating a script to the final product. Students will learn practical aspects of single camera techniques, basic lighting, audio recording, camera directing and video editing. This module also trains students in the entire production process, setting up a shot to produce and post. Students will produce film and edit their own short video clip.

SC8109 COMMUNICATION SKILLS FOR MEDIA MAKERS
Introduces students to the oral and written communication skills needed by those involved in creating content for the media industry. Students will analyze networks and their branding and recognize the impact of sponsorship on content creation in the industry. They will learn the elements of an effective proposal and the importance of networking in the media world. They will also learn to handle intense questions and answer sessions from media networks and media makers. In addition, students will be trained to sell their ideas by making effective pitches and presentations and how to market themselves and build connections in the industry.

SC8110 WORLD ISSUES AND THE MEDIA MAKER
Exposes students to the role of the media maker in impacting social and general issues. Students will explore how the media maker is influenced by history, ideology and current affairs as a source of inspiration in producing media products such as articles, television programmes and films. Students will also reflect on the influential roles of philosophers in key world events, leading to current media products.

SC8111 RESEARCH AND INTERVIEW TECHNIQUE
Stresses the importance of both primary and secondary research before an interview is conducted. Students will learn the different techniques in carrying out an interview for various purposes and platforms. Through hands-on and experiential learning, they will also learn to organise, structure, focus and apply story and narrative to primary and secondary research. This module will develop written feature story and a video report.

SC8116 JOURNALISM I: NEWSWRITING FOR THE GLOBAL AUDIENCE
Leads students to explore the importance of news in a globalised world and its impact on society, culture and politics. Students will be introduced to the basic elements and stages of news writing and be trained in news writing for print, television and the web. News research, investigation, accuracy and string editorial skills will also be enhanced in this era of information overload. Students will write reports, scoops and columns.

SC8117 TELEVISION AND ONLINE JOURNALISM
Aims to hone the skills of journalists in the fast-paced field of television and online reporting. Students will learn how to craft news copywriters, write to pictures, use sound and visuals, as well as make full use of online platforms for broadcast reporting. Students will develop scripts for soft and hard news, piece to camera and simulate breaking news situations.

SC8120 WEB PUBLISHING AND DESIGN
Aims to equip students with the basic principles in web publishing as well as Design Thinking techniques. Students will explore deep understanding of the user, find creative resolution to tensions, develop collaborative prototyping and modify ideas for web solutions. Students will experiment with web authoring software, digital imaging, video compression, layout and design principles for web publications. They will also manage and plan and prepare electronic publications.

SC8124 INTERNSHIP
Students will go on a 6-month internship with media production houses, media networks or media-related companies after Year 3. Semester 1. The internship is designed to let the students apply what they have learnt in the classroom and use it in the real media industry. It also provides students with the opportunity to join the media industry immediately or boost their portfolio when applying for scholarships or a place in university.

SC8127 TELEVISION AND ONLINE JOURNALISM
Aims to help students to apply what they have learnt and further their scriptwriting, producing and production skills in the context of producing a documentary.

SC8132 TRANSMEDIA STORYTELLING
This module shows students how narratives are relayed through creative and simultaneous use of multiple media platforms. Students will analyse the strengths and weaknesses of various mediums such as television, web, video games, social media and mobile apps. They will learn how to tell compelling stories that give the audience a more complete, rewarding, and immersive experience.

SC8133 MEDIA ENTREPRENEURSHIP
Gives students a broad overview of the media as a business, including the value chain from creation and production to distribution. Students will learn how to recognise changing media market demands, appreciate their place as writers and creators, take ownership of their work and discover how to network, manage and distribute their media content to production houses, television networks and related businesses. Students will also be taught to develop creative and innovative ways to brand their creations, look for sponsors, pitch and market their ideas and content, and adopt a proactive approach to media buyers and consumers.

SC8134 ON-LOCATION PRODUCTION
This module will deconstruct well-known documentaries that have changed the world and examine the elements that made the documentary one of the most significant genres of film and television. Students will explore the importance of objectivity, ethics and morality in their roles as social activists, and research and script a documentary on a pertinent issue.

SC8135 CREATIVE WRITING PROJECT
This module requires students to research, propose, conceptualise, write and film a trailer of an original concept for television or web. Finally, they will pitch their concept to industry content makers to showcase their strengths as media content writers and creators. The creative writing project will assess the students' learning in the areas of conceptualisation, writing, storytelling, pitching, video production, web design and media entrepreneurship skills.

SC8138 INTRODUCTION TO DOCUMENTARY
This module will deconstruct well-known documentaries that have changed the world and examine the elements that made the documentary one of the most significant genres of film and television. Students will explore the importance of objectivity, ethics and morality in their roles as social activists, and research and script a documentary on a pertinent issue.

SC8139 PLOT DEVELOPMENT
This module will deconstruct successful television dramas and comedies what hooks an audience to follow the show week after week and what makes the audience laugh. Students will apply what they learn to write scripts and present them in a professional format. They will practice techniques on how to ‘break’ a story and develop a script idea from final draft to scenario. Students will also learn how to construct character-specific and plot-driven dialogue. They will apply the rewriting process to rework storylines, nail the essence of their characters, tighten scenes, punch up dialogue and add polish to their final draft.

SC8140 VIDEO PRODUCTION FOR NARRATIVES I: DRAMA AND COMEDY
This module is designed to enable students to transform their written scripts into fully-fledged video productions. Students will be guided to pitch for their work to be produced and only the winning pitches and scripts will be produced by the teams. This module challenges students to apply what they have learnt and further refine their scriptwriting, producing, directing, filming and production management skills to produce a drama and comedy.

SC8141 VIDEO PRODUCTION FOR NARRATIVES II (DOCUMENTARY)
This module provides students with the skills to produce a five-minute documentary in an overseas location. Students will travel outside Singapore to explore a compelling story in an unfamiliar environment within a fixed duration. On location, students have three days to conduct location research, find a story, interview and film their documentary. Students will also be guided prior to the trip to prepare for the filming trip by conducting research, preparing a budget and scheduling a production schedule.

SC8142 FILMMAKING
Introduces screenwriting as a distinctive media platform that requires a different set of skills and techniques when interpreting a script. Students will learn about storytelling, screenplay, storyboarding, casting, directing and producing of a short film. This includes the different directorial styles of successful film directors so that they can apply it to their film in producing a short film. Students will also explore the business of movie-making.

SC8143 FILM PRODUCTION FOR NARRATIVES II (DOCUMENTARY)
This module provides students with the skills to produce a five-minute documentary in an overseas location. Students will travel outside Singapore to explore a compelling story in an unfamiliar environment within a fixed duration. On location, students have three days to conduct location research, find a story, interview and film their documentary. Students will also be guided prior to the trip to prepare for the filming trip by conducting research, preparing a budget and scheduling a production schedule.

SC8144 AI & MACHINE LEARNING
Provides students with the fundamental concepts in Artificial Intelligence (AI) and Machine Learning. The module aims to provide students with hands-on experience in building applications that use machine learning and neural networks. The students will also learn skills to build intelligent agents such as Chatbots and integrate cognitive service APIs to add intelligence into their applications.

SC8145 CRITICAL THINKING
This module provides students with an understanding of the ethical and moral aspects of Information Technology and media management, as well as the basic and general aspects of the law arising from the Information Technology and media industries. Upon the successful completion of this module, students will become aware of the ethical and moral issues faced by professionals in the Information Technology and media industries. They will also learn, understand and be able to apply general aspects of the law in the Information Technology and the media to their work in future.

SC8146 USER INTERFACE DESIGN
This module aims to provide students with the skills in designing interactive interfaces for various platforms, such as web and mobile, to provide good user experience. They will be equipped with skills to create interactive interfaces using design tools and validate their digital products adopting usability test methodologies.

SC8147 VISUAL DESIGN
This module aims to equip students to act as inquiring and thinking visual communicators in the area of interactive applications with graphical interface. It aims to develop the knowledge of user interface design, aesthetics and conceptual processes. Students will extend their knowledge in user interface design: aesthetics, interaction design, information architecture and user experience. Students will explore the importance of understanding the user, their needs and wants, and how to translate these into effective designs.

SC8148 PROGRAMMING FOR DATA SCIENCE
Provides students with the fundamental skills to code applications to retrieve, manipulate, process and visualize data using the Python programming language. Students learn key concepts such as what structured and unstructured data are, and how they can create and manipulate relational databases to explore data and to create visualizations that can help them gain useful insights from it.

SC8149 DATA VISUALIZATION AND ANALYTICS
Aims to develop a working knowledge of the basic principles of data visualization and analytics. Students will also learn how to use data visualization and analytics tools to create intelligent and visually appealing visualizations that communicate insights.

SC8150 AI AND MACHINE LEARNING
Provides students with the fundamental concepts in Artificial Intelligence (AI) and Machine Learning. The module aims to provide students with hands-on experience in building applications that use machine learning and neural networks. The students will also learn skills to build intelligent agents such as Chatbots and integrate cognitive service APIs to add intelligence into their applications.
ST0503 ESSENTIAL LINUX SYSTEM ADMINISTRATION
Aims to provide students with the hands-on sessions on Linux operating systems. Students will be taught on the use of various Linux commands/system tools for user management and security administration, software installation, network administration and configuration of services. These topics are essential and prerequisite to learning the skills of an entry level Linux administrator or helpdesk technician in an enterprise environment.

ST0504 FUNDAMENTALS OF PROGRAMMING
Aims to help students pick up a programming language and learn how to solve and automate tasks through programming. Students will be taught fundamental programming fundamentals such as variables, data types, operators, control structures, methods and data structures such as arrays. At the end of the module, students will be competent in using programming for problem solving.

ST0505 BACK-END WEB DEVELOPMENT
Aims to equip students with the skills to architect and design modern, complex scalable and mission critical enterprise systems. Students will develop an in-depth understanding of high-level concepts such as enterprise architecture and software architecture. They will be able to apply good software design patterns such as the model-view-controller architecture when developing their applications and understand the techniques to optimize and host their applications on the cloud. Students would also be taught on good practices of secure coding and be able to perform basic security of their enterprise web application.

ST0506 SOFTWARE APPLICATION PROJECT
Aims to give students a practical experience of software development from implementation, testing to deployment of enterprise applications. Students will learn development techniques and gain in-depth knowledge of Information Systems architecture, technical documentation with the Unified Modelling Language and versioning control through an IT system. This module will apply Agile project development methodologies in managing software development. At the end of the module, students will develop a deep practical understanding of Software Engineering and knowledge of the documentation issues that impact system knowledge-transfers.

ST0507 APPLICATION DEVELOPMENT STUDIO
Aims to provide students with the skills in application development knowledge in integrating their previously learned skill sets ranging from Front-End Web Development, Back-End Web Development and Mobile Application to develop and manage a small enterprise application development project. Students are to create a minimally viable, multi-tier software application with consideration of good usability practices learnt from Design from User Interaction.

ST0508 SOFTWARE APPLICATION PROJECT
This module provides students an opportunity to integrate knowledge and technical skills they have acquired from the course and experience problem solving, project management, communication and problem solving across IT applications. The project can be based on any IT application area, subject to the approval of the school and can be implemented using any software and hardware platform available in the school.

ST0509 JAVA PROGRAMMING
Aims to equip students with the fundamentals of problem solving with Java. A wide variety of programming problems will be introduced. The module covers Object-Oriented concepts and teaches students problem solving in an object-oriented approach. Essential application development topics such as UI programming and database programming are also included. Upon the completion of the module, students will be better equipped with problem solving techniques to design and develop robust applications with Java.

ST0510 J2EE APPLICATION DEVELOPMENT
Aims to equip students with knowledge in enterprise web application development, with the use of J2EE (Java 2 Platform, Enterprise Edition). Students will be able to develop a web application that applies the Model-View-Controller design pattern. RESTFUL web services with J2EE will also be covered. At the end of the module, students will have the opportunity to design and implement a web application that consumes web services with database access through deployment of the web server to the cloud will also be covered.

ST0511 ANDROID DEVELOPMENT
Aims to equip students with the skill in developing Android application using Java as the native language. Students will develop an Android app using design patterns of the basic components of an Android application, the lifecycle methods of Android application, communication using sound, notification, messaging, basics of GUI, graphics and multimedia support.

ST0512 DATA STRUCTURES & ALGORITHM
Aims to teach students advanced Object Oriented concepts and data structures and algorithms. Students will also learn how to work with modern platforms such as the Hadoop ecosystem to manage and manipulate ‘big data’ that traditional systems cannot handle.

ST0513 DATABASE VISUALISATION
Practices students to generate reports and dashboards that aid organizations to gain insights into their business data. Students will learn best practices for creating effective data visualizations to support strategic data analysis and data-driven decisions using popular industry software such as Excel, Tableau and Power BI.

ST0514 INFOCOMM SECURITY
This module provides students with skills to translate data into visually compelling graphics to effectively simplify and present it in an engaging and informative way. It aims to develop a working knowledge of basic principles of design and visual communication. Students will learn about understanding data hierarchy, planning and seeing framing, illustration and iconography and using the right tools to translate it into an appropriate medium.

ST2141 PYTHON AND C
Aims to develop fundamental programming skills in students through learning an imperative programming language and a scripting language (C and Python). The basic programming techniques and constructs in these two types of programming languages will be explained, including regular expressions, recursion, pointers, functions, structs and modules. The module strives to build up the foundation in programming and develop students towards problem solving.

ST2142 LINUX ADMINISTRATION AND SECURITY
Teaches students on the use of various Linux commands/ system tools for user management, security administration, software installation, network administration and configuration of services. Students will also learn how to secure the Linux operating system.
will be discussed to understand the certificates and public-key infrastructure and digital signatures. Students will be taught the essentials of security policy and incident management. Students will learn how to use security tools and utilities.

This module covers the fundamentals of security policy and incident management. Students will learn the essentials of security policy development, risk assessments and security models. Students will also learn to monitor security events, perform network forensic analysis and proactively detect attacks, and be introduced to security incident response.

SECU542 SECURING MICROSOFT WINDOWS
Aims at equipping the students with hands-on knowledge in securing and hardening a Windows operating system. The course will cover the security mechanism used in the operating system, configuring different levels of security measures, best practices and security related tools and utilities.

SECU543 SECURING LINUX
Aims at equipping the students with hands-on knowledge in securing and hardening a Linux operating system. The course will cover the security mechanism used in the operating system, configuring different levels of security measures, best practices and security related tools and utilities.

ST2413 DEFEND YOUR WEB
Aims to provide students with the knowledge and skills in identifying and protecting computer resources from threats such as malware, browser-based malware. Students will be trained in the latest technologies and tools to identify, analyse and mitigate browser-based malware.

ST2510 INDEPENDENT STUDY 1
Provides opportunities for students to study in-depth an area of interest related to their field of study. Students will be able to choose a topic of their interest and work on it under the guidance of an academic advisor.

ST2512 ETHICAL HACKING AND DEFENCES
This module provides students with a foundation on network protocols, network security, secure coding and penetration testing to protect computer resources. Students are taught offensive and defensive skills for the organisation’s wired and wireless networks in order to protect important assets against hackers.

ST2513 MOBILE APPLICATIONS
Imparts general domain knowledge in the area of mobile applications development. The architecture of the mobile network, the operating systems used in different mobile devices as well as the software tools used for mobile applications development will be taught. Students will also understand how deployment and bringing the application to market are done. On completion of the module, students will also be able to program among others user interfaces, persistence storage, 2D graphics and location-aware applications using Android as an example platform.

ST2514 DIGITAL FORENSICS AND INVESTIGATION
EQUIPS students with the fundamental concepts and techniques of digital forensics and investigation. Students will learn to acquire, analyse and present both computer and mobile data as evidence. The course will cover tools and techniques of computer and mobile forensics, data recovery, imaging and storage of electronic evidence.

ST2515 SECURE CODING
This course covers the concepts and fundamentals of secure coding principles, and techniques to prevent security vulnerabilities in web applications. Through a series of hacking and coding practical exercises, students will learn about the essential aspects of secure application development and subsequently how to defend their web applications against potential hackers by coding securely.

ST2516 INDEPENDENT STUDY II
Provides opportunities for students to study in-depth an area of interest related to their field of study. Students will be able to choose a topic of their interest and work on it under the guidance of an academic advisor.

ST2601 INFOSEC PROJECT DEVELOPMENT AND MANAGEMENT
Provides students with an opportunity to integrate knowledge and technical skills learnt from the DISM course. The students will be able to work on real-world scenarios and projects, and will be guided by professional mentors.

ST2610 NETWORK SECURITY
Provides students with a foundation on networking protocols, network security, intrusion detection, hence securing the organisation’s wired and wireless network infrastructure. The topics to be covered will include understanding of common communication protocols on the Internet like TCP/IP, HTTP, FTP. SMPT, as well as secure protocols like SSL and IPSSEC. It will also discuss network security threats and attacks, designing resilient networks, configuring of networking components like firewalls setting up Virtual Private Network (VPN) and secured wireless connections.

ST2617 MALWARE REVERSE ENGINEERING
Equips students with the basic knowledge of malware analysis to reverse-engineer the malware using practical tools and techniques. The three phases of behavioural, code and memory analysis of malware will be taught. Students will learn how to understand and explore the key characteristics of malware and the techniques of reverse-engineering compiled Windows executables and browser-based malware.

ST2618 WEB STACK FOR BUSINESS
This module teaches students basic coding and familiarises students with various technologies used to create functional applications. The module also introduces the students to prototyping tools that allow business students to design user-centric applications.

ST2620 SECURITY POLICY AND INCIDENT MANAGEMENT
This module covers the security policy and incident management. Students will learn the essentials of security policy development, risk assessments and security models. Students will also learn to monitor security events, perform network forensic analysis and proactively detect attacks, and be introduced to security incident response.

ST2630 INFOCOM PROFESSIONAL SEMINAR
Provides students with an opportunity to monitor and integrate emerging technology trends and developments, structured data gathering for the identification of new and emerging technological products, services and techniques. Students are to conduct research and identify opportunities for new and emerging technology to support businesses with consideration of the ethical principles and implications with IT law.

ST2631 GRAPHIC DESIGN USING IMAGING TOOLS 1
Aims at providing students with the fundamental techniques of image processing for graphic design using Adobe Photoshop. At the end of the module, students would be able to translate their creative concepts into digital artworks for use in screen and print media design.

ST2632 GRAPHIC DESIGN USING IMAGING TOOLS 2
Students will learn the basic techniques and skills of digital illustration using vector based software such as Adobe Illustrator. They will be able to create and transform their creative ideas into sophisticated graphics for use in print and any dynamic media.

ST2633 3D CONTENT DEVELOPMENT
Aims to introduce students to the fundamental concepts and techniques of 3D content development. Students will be taught the concept of 3D modeling and sculpting, which will enable students to apply these skills in the production of 3D assets within the digital realm. Students will be trained in using dedicated 3D software tools such as Autodesk Maya.

ST2634 ANIMATION STUDIO
Aims to provide students with primary production knowledge in integrating their previously learnt skill sets ranging from modelling to rendering to comprehensively develop and manage a short animated film production. Students are to create standard production timelines based on their presented ideas and encouraged to utilise simple assets created in the Introduction to 3D Computer Graphic module where possible to produce and deliver an entertaining and informative 3D animated video clip.
ST6108 TRADITIONAL ANIMATION
Aims to introduce students to the basic concepts involved in traditional animation. Students will learn the basic principles of animation and the techniques used in traditional animation, such as cel animation. The module will also provide students with the tools and skills necessary to create their own animated characters and scenes.

ST6102 GRAPHIC DESIGN PRINCIPLES
Aims to provide students with the conceptual tools and knowledge of design. It covers the fundamental principles of design and the techniques needed to create effective visual communication. Through practical exercises and assignments, students will develop their ability to think critically, creatively and visuospatially.

ST6129 ACTING FOR ANIMATION
Aims to provide students with a foundation in acting techniques and methodologies. Students will work with professional actors and directors to develop their skills in voice acting, movement, and physical performance. The module also covers the business and legal aspects of working as a voice artist.

ST6132 3D FUNDAMENTALS
Aims to equip students with the basic knowledge of 3D computer graphics. It covers the fundamentals of 3D modeling, animation, rendering, and lighting. Through hands-on practical exercises, students will learn how to create 3D models, animate them, and render their scenes.

ST613Z INTRODUCTION TO 3D COMPUTER GRAPHICS
Aims to introduce students to the terminology and concepts of 3D computer graphics. Students will learn about the hardware and software required to create 3D models, as well as the mathematical concepts underlying 3D graphics.

ST6132 VIDEO AND AUDIO FUNDAMENTALS
Aims to train students in basic video and audio production. Students will learn about the tools and techniques used in video and audio production, as well as the principles of composition and editing.

ST6203 2D ANIMATION
Aims to provide students with a comprehensive understanding of the principles and techniques of 2D animation. It covers the history and evolution of 2D animation, as well as the tools and software used in creating 2D animations.

ST6205 3D ANIMATION
Aims to introduce students to the concepts and techniques of 3D animation. It covers the history and evolution of 3D animation, as well as the tools and software used in creating 3D animations.

ST6239 3D CHARACTER ANIMATION
Aims to build upon the concepts taught in 3D Animation. Students will apply these concepts to produce 3D animation within the digital realm.

ST6288 DIGITAL LIGHTING AND RENDERING
Aims to provide students with a comprehensive understanding of the principles and techniques of digital lighting and rendering. It covers the history and evolution of digital lighting and rendering, as well as the tools and software used in creating realistic 3D images.

ST6289 FIGURE DRAWING FOR ANIMATION
Aims to build upon the concepts taught in Figure Drawing. Students will apply these concepts to create convincing movement in their animation.

ST6290 ADVANCED LIGHTING AND RENDERING
Aims to introduce students to high-end lighting and rendering techniques.

ST6291 ENVIRONMENT AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.

ST6292 FIGURE DESIGN AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.

ST6293 3D ENVIRONMENT AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.

ST6294 2D ENVIRONMENT AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.

ST6295 3D ENVIRONMENT AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.

ST6296 2D ENVIRONMENT AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.

ST6297 3D ENVIRONMENT AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.

ST6301 3D ENVIRONMENT AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.

ST6302 3D ENVIRONMENT AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.

ST6303 3D ENVIRONMENT AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.

ST6304 3D ENVIRONMENT AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.

ST6305 3D ENVIRONMENT AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.

ST6306 3D ENVIRONMENT AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.

ST6307 3D ENVIRONMENT AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.

ST6308 3D ENVIRONMENT AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.

ST6309 3D ENVIRONMENT AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.

ST6310 3D ENVIRONMENT AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.

ST6311 3D ENVIRONMENT AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.

ST6312 3D ENVIRONMENT AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.

ST6313 3D ENVIRONMENT AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.

ST6314 3D ENVIRONMENT AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.

ST6315 3D ENVIRONMENT AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.

ST6316 3D ENVIRONMENT AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.

ST6317 3D ENVIRONMENT AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.

ST6318 3D ENVIRONMENT AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.

ST6319 3D ENVIRONMENT AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.

ST6320 3D ENVIRONMENT AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.

ST6321 3D ENVIRONMENT AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.

ST6322 3D ENVIRONMENT AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.

ST6323 3D ENVIRONMENT AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.

ST6324 3D ENVIRONMENT AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.

ST6325 3D ENVIRONMENT AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.

ST6326 3D ENVIRONMENT AND PROP MODELLING
Aims to equip students with the necessary technical skills to generate photorealistic terrains, interior and exterior models as well as their shaders. This module also focuses on up-to-date processes and techniques using popular software and online resources.
**ST6301 ADVANCED DRAWING**
Aims to explore the relationship of figure drawing between animation and the conceptualisation process. Students need to articulate a visual story which they prepare for the animation production to demonstrate their animation and humanist analysis.

**ST6332 ENVIRONMENT AND CHOICE OF MEDIUM**
Integration of directorial art style, to demonstrate how its mythology and aesthetic.

**ST6333 INDEPENDENT STUDY**
Aims to develop students' critical understanding of a field of study dedicated to digital animation and their capacity to pursue independent research, culminating in an assignment presentation which will demonstrate their knowledge and competence in the chosen field of specialisation.

**ST6334 ANIMATION STUDIO III**
Aims to provide students with the opportunity to apply concepts and techniques learnt in managing and executing real-world animated film projects. Students may utilise assets created in the Conceptualisation to Layout module or generate new story ideas and create an animated film through full production pipeline. In addition, the module will include workshops conducted by industry professionals to provide insights and assist students in managing and producing work in line with professional practices.
**Synopses**

**Aims to explore a variety of genres, as well as knowledge of the mechanisms of sound and its role in media environments. The mechanism of sound production and its perception is also covered to provide a broad understanding of the scientific principles used in Audio and Music Technology.**

**ST8103**

**ACOUSTICAL SCIENCE**

Aims to provide foundational understanding of the principles of acoustics related to musical instruments and physical environments. The mechanism of sound production and its perception is also covered to provide a broad understanding of the scientific principles used in Audio and Music Technology.

**ST8105**

**RECORDING AND MIXING TECHNIQUES I**

Introduces students to the field of sound recording and music production. The students will learn well-established techniques of recording and mixing using industry standard hardware and software. Students will learn about audio processes through practical exercises and critical listening.

**ST8205**

**MUSIC THEORY II**

This module aims to develop the students' understanding and application of contemporary music theory by exploring important techniques used in popular contemporary music.

**ST8209**

**THE BUSINESS OF MUSIC**

Introduces students to the business, legal and ethical and fiscal aspects of the music world and students will learn about its organisation and structure including the different roles, major players and career opportunities in it. An introduction to entrepreneurship is included.

**ST8222**

**PERFORMANCE PRACTICES**

Provides a basic grounding in generic skills useful in contemporary music performance situations. In addition to introducing a structured approach to learning instrumental techniques, the focus of the module is on the development of performance skills and techniques.

**ST828Z**

**TECHNIQUES II**

Aims to develop the student's musicianship and knowledge of the approaches to music production and mixing. The module will be introduced to a greater variety of multi-tracking and mixing techniques.

**ST8304**

**AUDIO POST PRODUCTION**

This module will enable students to gain an understanding of the principles and techniques of audio post production. Students will learn about the role of sound in the film and television industry and the techniques used to create and manipulate recorded sound.

**ST8305**

**PORTFOLIO DEVELOPMENT**

Assists the student to develop a professional portfolio. Students will create and produce a number of projects to record and mix. The module will also cover the process of creating a professional portfolio, which includes the use of software and hardware.

**ST8307**

**SCORING FOR VISUALS**

The module aims to equip students with the necessary skills and knowledge to create music and sound for visual media. Students will be exposed to the processes and practices of scoring and will analyse the different functions of different music genres through class discussions.

**ST8310**

**SONG WRITING**

Introduces students to the techniques of writing a song. In particular, students will learn about the different aspects of songwriting, such as melody, harmony and rhythm.

**ST839Z**

**SONGWRITING**

Introduces students to the techniques of writing a song. In particular, students will learn about the different aspects of songwriting, such as melody, harmony and rhythm.

**ST843Z**

**INTERACTIVE AUDIO**

Interactive Audio applies computer programming concepts to create interactive music and audio systems. Using a programming environment optimised for creating music and audio applications, students will create a variety of music production systems.

**ST844Z**

**MUSIC THEORY I**

This is a foundational module that aims to equip students with basic music theory skills. Students will acquire musical literacy, as well as basic analytical and harmal skills. Emphasis is on the tonal harmony used in traditional Western music. Students will also be given an overview of the history of Western Art Music. They will also be introduced to the history of Contemporary Western music, including important composers and their works.

**ST846Z**

**PRODUCTION WORKSHOP**

Lecturers work on commercial music projects from individual music artists, to bands, to music and audio for visual media. Mainly producing music from the ground up, the way it would be done in the industry. These projects will bring together the various skills the students have learnt in DMAT and refine them to the standards required commercially. These projects will eventually be released commercially to the public. Students will learn first hand what it takes to bring a musical or audio production into the market, by working alongside their lecturers.

**ST848Z**

**PRODUCTION LAB**

Production Lab is a facilitated time and space for students to explore the entire production process at an elementary level. Drawing connections between the concepts introduced in the first-year modules, students will be exposed to various aspects of music production, from pre-production to post-production, as well as the support processes.

**ST850Z**

**MUSIC THEORIES**

Introduces students to the techniques of writing a song. In particular, students will learn about the different aspects of songwriting, such as melody, harmony and rhythm.

**ST859Z**

**MUSIC TECHNOLOGY I**

Introduces students to the techniques of writing a song. In particular, students will learn about the different aspects of songwriting, such as melody, harmony and rhythm.

**ST870Z**

**MUSICAL INSTRUMENTS**

Introduces students to the techniques of writing a song. In particular, students will learn about the different aspects of songwriting, such as melody, harmony and rhythm.

**ST880Z**

**MUSIC INSTRUMENTS**

Introduces students to the techniques of writing a song. In particular, students will learn about the different aspects of songwriting, such as melody, harmony and rhythm.