Our Mission
Create Opportunities for Students and Adult Learners to Acquire Skills, Knowledge and Values for Employability and Lifelong Learning

Our Vision
A Trailblazer in Career Technical Education and Work-Study Training

Core Values
Integrity
Teamwork
Excellence
Care
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Higher Nitec in Electronics Engineering (2 years)
Higher Nitec in Games Art & Design
Higher Nitec in IT Applications Development (2 years)
Higher Nitec in IT Systems & Networks (2 years)
Higher Nitec in Security System Integration (2 years)
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Higher Nitec in IT Applications Development (3 years)
Higher Nitec in IT Systems & Networks (3 years)
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MESSAGE
FROM CHIEF EXECUTIVE OFFICER

Dear students,

While Covid-19 has posed many challenges these past two years, ITE stays resolved to adapt and innovate such that you can benefit from the full ITE experience of Hands-on experiential training in high-tech authentic training facilities, Minds-on learning to build a strong foundation for your future and Hearts-on activities to enrich you to become passionate, confident and caring individuals.

Refreshed and New Curricular Structure

ITE reviews and updates all skills content in the Nitec and Higher Nitec courses offered to you as we want to ensure skills currency and relevance to the industry. This will also enable ITE graduates to transit smoothly into the workplace or pursue further skills upgrading through the diploma offerings at ITE (Work-Study Diploma and Technical Diploma) or at the polytechnics.
Some of you will be embarking on the new **three-year Curricular Structure that leads directly to a Higher Nitec certification**. Year 1 students will learn broad foundation skills needed for the chosen industry and Year 2 and Year 3 students will take more specialised modules as students begin to choose their preferred career and area of specialisation in the industry sector. Workplace learning through internship in Year 2 and 3 will enable students to gain industry exposure and work-ready skills.

**Gearing up for a Digital and AI-Enabled Economy**

We want to better prepare you for the digital economy that is also powered by Artificial Intelligence (AI). As such, all Year 1 students will be taking a short module on Basic AI. We have also infused digital skills such as data analytics, automation, cybersecurity and AI use into relevant courses.

We are excited to be part of your journey of learning and discovery and I am confident you will find the ITE experience an enriching one.

*MS LOW KHAH GEK*
Chief Executive Officer
ABOUT ITE

The Institute of Technical Education (ITE) was established on 1 April 1992 as a post-secondary institution. Besides providing graduates with good job and career advancement opportunities, ITE offers re-skilling and up-skilling courses for everyone who embraces lifelong learning.

Adopting a ‘One ITE System, Three Colleges’ Education and Governance Model, ITE provides a high-quality and exciting learning experience for students. There is a wide range of courses for secondary school graduates and working adults, with options from the Schools of Applied & Health Sciences, Business & Services, Design & Media, Electronics & Info-Comm Technology, Engineering and Hospitality.

ITE provides three levels of certification for Pre-Employment Training:

- **National ITE Certificate (Nitec)** for courses that require completion of GCE ‘N’ or GCE ‘O’ as an entry requirement with pre-requisites for certain courses.

- **Higher National ITE Certificate (Higher Nitec)** for courses that require GCE ‘O’ or GCE ‘N(A)’ with pre-requisites as an entry requirement.

- **Technical Diploma / Work-Study Diploma** for courses that require relevant Higher Nitec / Nitec as an entry requirement.

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A TRAILBLAZER IN CAREER TECHNICAL EDUCATION AND WORK-STUDY TRAINING

We are constantly motivated to do our best for ITE students, by building opportunities for them to hone their craft, sharpen their career readiness, and broaden mindsets.

In recognition of our organisational excellence, we received the prestigious Singapore Quality Award with Special Commendation, for the second time, in 2018. ITE was the first education institution in Singapore to have received the Award in 2011 and remains the only education institution in Singapore to have won it twice.

The Award is an affirmation of ITE’s successful transformation journey. Together with our partners, staff and students, we have elevated technical education to one that is world-class, capable of setting new global benchmarks, and relevant to rapid-changing industry landscapes. By providing market-relevant skills, knowledge and values, the lives of our students are impacted positively. We shall continue our work in advancing technical education to skill Singapore for the future.

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SKILLS FOR FUTURE, SKILLS FOR LIFE

**A Global Education for a Global Economy**

Singapore’s economy is increasingly tied to the economies of other countries. To ensure success in such a dynamic globalised environment, its workforce must be equipped with the relevant skills and knowledge, be ready to adapt easily to changes in technology and culture, and be enterprising enough to seize the opportunities.

To ensure that our education system remains relevant and responsive to the needs of our students, ITE focuses on equipping our students with the necessary knowledge, skills and values that will make them relevant and ready for the global economy.
Professional Endorsement of ITE Courses
To ensure that our training syllabuses meet the needs and standards of industry, we have in place a well-established system to validate each course syllabus. Within the system, Academic Advisory Committees (AACs) are set up to examine and endorse syllabuses of courses for the respective industries or occupational clusters. Each AAC comprises employer representatives, professionals and specialists from the respective industries. The AACs meet regularly to discuss and review the syllabuses, provide feedback on changes in industry, as well as provide specialist advice on technological trends.

Career Cluster-based Curriculum Framework
Against a fast-changing global economy, students need more cross-training, re-skilling and continual learning to be versatile and resilient. The Career Cluster-based Curriculum Framework, implemented in 2014, will give ITE graduates an edge in the working world. Students will enjoy better streamlined progression opportunities and acquire broader skills and knowledge spanning a cluster of courses in similar industries. The Career Cluster-based Curriculum Framework will prepare ITE graduates for a wider cluster of career opportunities through a more robust and flexible learning framework.

Teaching and Learning Philosophy
Besides going through core skills modules in their respective courses, ITE students enjoy multi-disciplinary and cross-level learning, life skills modules, IT-based learning, entrepreneurship and leadership programmes as well as overseas experiences through the Global Education Programme. All courses include an Enhanced Internship component, with students undergoing real-work training with companies in the final year of their course.

At the heart of ITE’s training lies a unique Hands-on, Minds-on and Hearts-on™ philosophy of education. The emphasis on practical learning provides a strong foundation to build technical expertise for their careers. Students have opportunities to collaborate in teams, work independently and solve real world problems. With companies placing emphasis on employees’ transferrable skills, ITE also imbues in students discipline-specific values and professional ethics. We believe that such immersion empowers our students to be career-ready, life-ready, world-ready and future-ready.

Competent and Caring Lecturers
To provide good quality technical training, it is vital to have competent staff who are dedicated to their students and are passionate at work. Our lecturers are qualified professionals, with both the technical expertise and pedagogic know-how to motivate students.

With opportunities for career growth and building of capability, ITE staff enjoy staff development programmes to update and upgrade their digital capabilities and industry knowledge. We encourage them to form collaborative partnerships with educational partners and stakeholders. In addition, lecturers undergo industry attachments at regular intervals to keep in touch with developments and changes in the industry.
Modes of Training

As a post-secondary education institution, ITE admits graduates from Secondary Schools, NorthLight School and Assumption Pathway School into its full-time ITE Education and Traineeship courses. The entry requirements differ for the various courses and admission is based on merit and choice.

GCE ‘O’ and GCE ‘N’ Level holders who are interested in joining ITE can choose to take up a course either under full-time or traineeship mode of training. There are 96 full-time courses and over 20 traineeship courses available. Table 1 gives a brief description of each mode of training.

<table>
<thead>
<tr>
<th>Table 1 – Brief Description of Modes of Training</th>
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<tbody>
<tr>
<td><strong>Full-time</strong></td>
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<tr>
<td><strong>Traineeship</strong></td>
</tr>
</tbody>
</table>

SMART LEARNING IN AN ENRICHING ENVIRONMENT

Under the ‘One ITE System, Three Colleges’ Model, ITE’s curriculum is delivered across three Colleges in Singapore. All Colleges promote multi-disciplinary and cross-level learning.

To help students learn better, each ITE College is equipped with high-tech learning spaces and lecturers adopt digital learning approaches. Practical lessons are conducted in exciting, authentic learning environments that simulate actual work situations, from aircraft hangars, well-equipped training kitchens and restaurants to sound stages, AR/VR studios, retail and healthcare labs. Students also receive training from digital learning platforms, accessed through mobile devices and personal computers, at their own pace.

Our Colleges have extensive sports and recreational facilities, too, such as gymnasiums and courts for volleyball, badminton, basketball and tennis, and swimming pools. Students who are interested in performance arts have opportunities to hone their skills in black box theatres and dance studios.

Each College provides an environment for students to thrive, whether in their studies or in their areas of interest.
ACADEMIC INFORMATION

- ADMISSIONS & COURSES
- CURRICULUM STRUCTURE
- ASSESSMENT & EXAMINATION
- ACADEMIC PROGRESSION
- ACADEMIC CALENDAR 2022/2023
ADMISSIONS & COURSES

APPLICATION FOR ADMISSION TO FULL-TIME COURSES

Application for ITE full-time courses can be made under the Joint Intake Exercise (JIE) and the Joint Admissions Exercise (JAE). The JIE is conducted in December and January while the JAE is conducted in January each year.

The intake exercises follow the release of the Singapore-Cambridge GCE ‘N’ and GCE ‘O’ Level results in December and January respectively. Singapore Citizens / Singapore Permanent Residents and International students (from Government, Government-aided and Independent schools) with GCE ‘N’ or ‘O’ Level qualification may apply under the relevant intake exercise during the appropriate application period (see Table 2).

The offer of an ITE course to applicants is subject to them being physically, medically and mentally fit to pursue the course. This is to ensure that all students can benefit from ITE training in a safe and conducive environment. Applicants or students assessed by ITE as being unfit can be withdrawn from the course. Where appropriate, they may be considered for other courses if there are suitable ones.

The Learning Accessibility Office (LAO) at each ITE College will provide support to students with Special Education Needs in their learning process. Applicants with special education needs are strongly encouraged to seek academic course advising from the respective College(s) before selecting their choice of application. For further assistance on course advising before submission of application, applicants may make an appointment online with one of our ECG Counsellors via https://for.edu.sg/ecg.

LATE APPLICATIONS

Late applications will be accepted for courses only where there are vacancies within the period of intake exercise. Applicants can apply via Internet or at the College offering the course of their choice.

APPLICATION FOR COURSE TRANSFER

Application for transfer between courses or Colleges may be considered subject to applicants’ eligibility and vacancy available.

ITE EARLY ADMISSIONS EXERCISE (EAE)

ITE also conducts the Early Admissions Exercise (EAE), an aptitude-based admissions exercise that allows students to apply and receive conditional offers for admission to ITE based on their aptitudes and interests, prior to receiving their final Nitec, GCE ‘N’ or ‘O’ Level examination results. It allows ITE greater flexibility in selecting students on a broader measure of criteria other than academic grades, thus allowing a wider range of talents to be recognised.

The EAE is primarily targeted at students who have strong aptitude and interest in a field related to the course they are applying for. Students’ achievements in sports, arts, leadership, entrepreneurship and community service will also be taken into consideration during the selection process.

The EAE is conducted in May each year and is open to:

GCE ‘N’ Level or GCE ‘O’ Level students
- Singapore Citizens and Singapore Permanent Residents who have registered to sit for the GCE ‘N’ or ‘O’ Level examinations in the year of the EAE application;
- International students enrolled in Government, Government-aided and Independent Schools during the year of the EAE application, and who have registered to sit for the GCE ‘N’ or ‘O’ Level examinations in the year of the EAE application;
- Singapore Citizens and Singapore Permanent Residents who have sat for the GCE ‘N’ or ‘O’ Level examinations previously; and
- Singapore Citizens and Singapore Permanent Residents who are working adults with minimum 2 years relevant work experience may also apply.

Nitec Progression students
- Singapore Citizens, Singapore Permanent Residents and International students of ITE full-time or Traineeship Nitec courses who will graduate in the same ITE academic year as the EAE;
- Singapore Citizens and Singapore Permanent Residents who have graduated from ITE full-time or Traineeship courses; and
- Singapore Citizens and Singapore Permanent Residents who are working adults with Nitec qualification and minimum 2 years relevant work experience may also apply.
<table>
<thead>
<tr>
<th>Intake Exercise</th>
<th>JIE ‘N’</th>
<th>JIE ‘E’</th>
<th>JIE ‘O’</th>
<th>JIE ‘H’ (Direct Entry Scheme to Polytechnic Programme)</th>
<th>JAE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intake Point</td>
<td>January</td>
<td>January</td>
<td>January</td>
<td>January</td>
<td>April</td>
</tr>
<tr>
<td>For Whom</td>
<td>GCE ‘N’ and ‘O’ Level holders</td>
<td>GCE ‘N(T)’ Level holders with 0 or 1 GCE ‘N’ Pass</td>
<td>GCE ‘O’ Level holders</td>
<td>Eligible GCE ‘N(A)’ Level holders</td>
<td>GCE ‘O’ Level holders</td>
</tr>
<tr>
<td>Type of Course</td>
<td>3-Year Higher Nitec and 2-Year Nitec</td>
<td>3-Year Nitec with Enhanced Nitec Foundation Programme</td>
<td>3-Year Higher Nitec and 2-Year Nitec</td>
<td>2-Year Higher Nitec with 10 weeks of preparatory course</td>
<td>2-Year Higher Nitec</td>
</tr>
<tr>
<td>Application Period</td>
<td>Application is open following the release of the GCE ‘N’ level results.</td>
<td>Application is open following the release of the GCE ‘N’ level results.</td>
<td>Application is open following the release of the GCE ‘O’ level results.</td>
<td>Application is open following the release of the GCE ‘N’ level results.</td>
<td>Application is open following the release of the GCE ‘O’ level results.</td>
</tr>
<tr>
<td>Application Form (Fresh School Leavers)</td>
<td>Obtain <strong>Form N</strong> and Admission Booklet from school.</td>
<td>Obtain <strong>Form N</strong> and Admission Booklet from school.</td>
<td>Obtain <strong>Form J</strong> and Admission Booklet from school.</td>
<td>Obtain <strong>Form N</strong> and Admission Booklet from school.</td>
<td>Obtain <strong>Form A</strong> and Admission Booklet from school.</td>
</tr>
<tr>
<td>Submission of Application Form (Fresh School Leavers)</td>
<td>Submit application through the Internet.</td>
<td>Submit application through the Internet.</td>
<td>Submit application through the Internet.</td>
<td>Submit application through the Internet.</td>
<td>Submit application through the Internet.</td>
</tr>
<tr>
<td>Submission of Application Form (Past Year MOE School Leavers (Singapore Citizens / Singapore Permanent Residents)]</td>
<td>Submit application through the Internet.</td>
<td>Submit application through the Internet.</td>
<td>Submit application through the Internet.</td>
<td>N.A.</td>
<td>Submit application through the Internet.</td>
</tr>
<tr>
<td>Outcome of Application</td>
<td>Applicants can check the result of their application through the Internet at ITE website.</td>
<td>Applicants can check the result of their application through the Internet at ITE website.</td>
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<td>Applicants can check the result of their application through the Internet at ITE website.</td>
<td>Applicants can check the result of their application through the Internet at MOE website.</td>
</tr>
</tbody>
</table>
ITE is offering 3 Technical Diploma courses for aspiring ITE graduates in related fields. The Technical Engineer Diploma in Automotive Engineering and Technical Engineer Diploma in Machine Technology courses are offered through a collaboration between ITE and the Ministry of Education, Youth & Sports (MEYS) of Baden-Wurttemberg, Germany while the Technical Diploma in Culinary Arts course is a collaborative effort between ITE and the renowned institution, Institut Paul Bocuse, in Lyon, France.

**Technical Engineer Diploma in Automotive Engineering**  
The Technical Engineer Diploma in Automotive Engineering course follows a practice-based curriculum prescribed by ITE’s prestigious partner institution, Carl-Benz-Schule in Gaggenau, Germany, to prepare ITE graduates in more than one way for a promising career in the automotive industry. This full-time course will provide ITE graduates with the skills and knowledge in analysing and resolving complex technical problems associated with motor vehicles, managing workshop maintenance and repair services, rendering technical advice and providing workshop services to motorists.

**Technical Engineer Diploma in Machine Technology**  
The Technical Engineer Diploma in Machine Technology course follows a practice-based curriculum prescribed by ITE’s prestigious partner institution, Gottlieb-Daimler-Schule 1 in Baden-Wurttemberg, Germany. This full-time course will provide ITE graduates with the skills and knowledge in modern precision technology addressing higher precision, advanced automation for manufacturing, business and production quality management, digital application for managing production, business communication techniques & business economics and Engineering IT & design.

**Technical Diploma in Culinary Arts**  
The Technical Diploma in Culinary Arts with Restaurant Management course is offered in collaboration with the renowned institution, Institut Paul Bocuse, in Lyon, France. With a holistic curriculum, this full-time course includes a wide spectrum of modules encompassing techniques, knowledge and experiences to prepare Chefs, Restaurant Managers and Food & Beverage Entrepreneurs of the future. The practical-dominant modules encompassing culinary and pastry techniques, business and management, health & nutrition, and resource management deepens ones’ knowledge in the Food & Beverage industry. Whether working for a 3-Michelin Star restaurant, a 5-star Hotel or as an aspiring Entrepreneur, the graduates of the Technical Diploma in Culinary Arts in Restaurant Management will be equipped with the skillsets for a successful career.
The Technical Diploma courses are for ITE graduates in related fields who meet the entry requirements. Details on the entry requirements of these Technical Diploma courses offered are given in Table 3.

**Table 3 – Entry Requirements for Technical Engineer Diploma / Technical Diploma Courses**

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Duration</th>
<th>Minimum Entry Requirements</th>
</tr>
</thead>
</table>
| Technical Engineer Diploma in Automotive Engineering # | 2 years of full-time training at ITE College West* | ▶ Singapore Citizens  
▶ Applicants with the following relevant ITE qualifications may apply:  
  • *Higher Nitec in Aerospace Engineering, Higher Nitec in Automotive Engineering, Higher Nitec in Mechanical Engineering, Higher Nitec in Mechatronics Engineering, Higher Nitec in Rapid Transit Engineering or Higher Nitec in Robotics & Smart Systems with GPA of 2.0 and above; or*  
  • *Nitec in Aerospace Avionics, Nitec in Aerospace Technology, Nitec in Automotive Technology, Nitec in Automotive Technology (Heavy Vehicles), Nitec in Automotive Technology (Light Vehicles), Nitec in Mechanical Technology, Nitec in Mechatronics, Nitec in Mechatronics (Automation Technology), Nitec in Mechatronics (Equipment Assembly), Nitec in Mechatronics (Medical Technology), Nitec in Mechatronics & Robotics or Nitec in Rapid Transit Technology with GPA of 3.0 and above.*  
OR  
▶ Applicants with the following qualifications who meet the minimum academic requirements and have at least 1 year of relevant work experience may apply:  
  • *Nitec in Technology - Automotive Technology (Heavy Vehicles), Nitec in Technology - Automotive Technology (Light Vehicles), Nitec in Technology – Automotive Technology, Nitec in Technology – Mechanical Technology, Nitec in Technology – Mechatronics & Robotics with GPA of 3.0 and above; or*  
  • *WSQ Diploma in Mechatronics & Robotics, WSQ Specialist Diploma in Aerospace (Aeroplane Turbine), WSQ Specialist Diploma in Aerospace (Avionics), WSQ Graduate Diploma in Mechatronics with Level 6 WSQ Workplace Literacy and Workplace Numeracy*  
OR  
▶ Working adults with at least 2 years of relevant work experience can be considered for admission.  

**Note:**  
- In line with industry requirements, applicants must ensure that they are free from colour appreciation deficiency.  
- Shortlisted applicants will be required to attend an interview and pass an aptitude test for admission.
<table>
<thead>
<tr>
<th>Course Title</th>
<th>Duration</th>
<th>Minimum Entry Requirements</th>
</tr>
</thead>
</table>
| Technical Engineer Diploma in Machine Technology | 2 years of full-time training at ITE College Central*                     | ► Singapore Citizens  
► Applicants with the following relevant ITE qualifications may apply:  
  or  
OR  
► Applicants with the following qualifications who meet the minimum academic requirements and have at least 1 year of relevant work experience may apply:  
  or  
  or  
• WSQ Diploma in Applied Manufacturing Technology, WSQ Diploma in Machinery & Systems, WSQ Diploma in Mechatronics & Robotics, WSQ Diploma in Precision Engineering (Master Craftsman Skills), WSQ Diploma in Surface Engineering, WSQ Specialist Diploma in Machine Building and Project Management, WSQ Specialist Diploma in MedTech Manufacturing, WSQ Specialist Diploma in Precision Engineering, WSQ Specialist Diploma in Precision Engineering (Master Craftsman Skills), WSQ Specialist Diploma in Productivity Management (Manufacturing), WSQ Graduate Diploma in Design and Processes, WSQ Graduate Diploma in Factory Visibility and Control, WSQ Graduate Diploma in Manufacturing Operations Management, WSQ Graduate Diploma in Manufacturing Operations Management (for SMEs), WSQ Graduate Diploma in Mechatronics, WSQ Graduate Diploma in MedTech Manufacturing, WSQ Graduate Diploma in Precision Engineering, WSQ Graduate Diploma in Precision Management and Characterisation with Level 6 WSQ Workplace Literacy and Workplace Numeracy  
OR  
► Working adults with at least 2 years of relevant work experience can be considered for admission  

*Note:* Shortlisted applicants will be required to attend an interview and pass an aptitude test for admission.
<table>
<thead>
<tr>
<th>Course Title</th>
<th>Duration</th>
<th>Minimum Entry Requirements</th>
</tr>
</thead>
</table>
| Technical Diploma in Culinary Arts # | 2.5 years of full-time training at ITE College West, including a 9-month internship | ▶ Singapore Citizens  
▶ Applicants with the following relevant ITE qualifications may apply:  
  - Higher Nitec in Culinary Arts, Higher Nitec in Hospitality Operations or Higher Nitec in Pastry & Baking with GPA 2.0 and above; or  
  - Nitec in Asian Culinary Arts, Nitec in Food & Beverage Operations, Nitec in Hospitality Operations, Nitec in Pastry & Baking or Nitec in Western Culinary Arts with GPA 3.0 and above.  
OR  
▶ Applicants with the following qualifications who meet the minimum academic requirements and have at least 1 year of relevant work experience in culinary arts may apply:  
  - Higher Nitec in Services – Hospitality Operations with GPA of 2.0 and above; or  
  - Nitec in Services – Food & Beverage Operations, Nitec in Services – Pastry & Baking with GPA of 3.0 and above; or  
  - WSQ Diploma in Culinary Arts, WSQ Diploma in Pastry & Bakery, WSQ Diploma in Beverage Management, WSQ Diploma in Hotel & Accommodation Services, WSQ Diploma in Food & Beverage Management, WSQ Specialist Diploma in Food & Culinary Science, WSQ Specialist Diploma in Culinary Management, WSQ Specialist Diploma in Hotel & Accommodation Services, WSQ Graduate Diploma in Hotel & Accommodation Services with Level 6 WSQ Workplace Literacy and Workplace Numeracy  
OR  
▶ Working adults with at least 2 years of relevant work experience can be considered for admission  

Note:  
Shortlisted applicants will be required to attend an interview and pass a pre-admission medical examination for admission.

Note: * The Diploma certification (English version) will be issued by MEYS. ITE and MEYS will also issue a joint academic transcript to all graduates, reflecting the grades attained in the course. To apply for further studies at Universities of Applied Sciences in Germany, TED graduates will be required to fulfil 1.5 years of relevant work experience. Relevant work experience acquired before the TED in Automotive Engineering and TED in Machine Technology courses may be recognised (including relevant internships and work experience gained prior to and during training at Nitec and Higher Nitec levels).  
# Successful students will be required to purchase a Laptop for the course. This is in addition to the course fees. The Laptop specifications will be advised by the College upon admission. Financial assistance is available to eligible students under ITE Opportunity Fund subject to terms and conditions.
The 2-year Higher National ITE Certificate (*Higher Nitec*) courses are for GCE ‘O’ and GCE ‘N(A)’ Level holders who meet the entry requirements.

Details on the entry requirements of the *Higher Nitec* courses are given in Table 4A. *Nitec* graduates with good Grade Point Average (GPA) score are also eligible to apply for the *Higher Nitec* courses.

### Table 4A - Entry Requirements for 2-Year *Higher Nitec* Courses

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Duration</th>
<th>Minimum Entry Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Higher Nitec</em> in Early Childhood Education</td>
<td>2 years</td>
<td>3 GCE ‘O’ Level Grades: Grade 1-6 in English Language Grade 1-6 in two other subjects [To be eligible for selection, applicants must have sat for Mathematics (Elementary or Additional)]</td>
</tr>
<tr>
<td><em>Higher Nitec</em> in Beauty &amp; Wellness Management</td>
<td>2 years</td>
<td>3 GCE ‘O’ Level Grades: Grade 1-7 in English Language Grade 1-7 in two other subjects [To be eligible for selection, applicants must have sat for Mathematics (Elementary or Additional)]</td>
</tr>
<tr>
<td><em>Higher Nitec</em> in Hospitality Operations</td>
<td>2 years</td>
<td>3 GCE ‘O’ Level Grades: Grade 1-7 in English Language Grade 1-7 in two other subjects [To be eligible for selection, applicants must have sat for Mathematics (Elementary or Additional)]</td>
</tr>
<tr>
<td><em>Higher Nitec</em> in Leisure &amp; Travel Operations</td>
<td>2 years</td>
<td>3 GCE ‘O’ Level Grades: Grade 1-7 in English Language Grade 1-7 in two other subjects [To be eligible for selection, applicants must have sat for Mathematics (Elementary or Additional)]</td>
</tr>
<tr>
<td><em>Higher Nitec</em> in Passenger Services</td>
<td>2 years</td>
<td>3 GCE ‘O’ Level Grades: Grade 1-7 in English Language Grade 1-7 in two other subjects [To be eligible for selection, applicants must have sat for Mathematics (Elementary or Additional)]</td>
</tr>
<tr>
<td><em>Higher Nitec</em> in Accounting</td>
<td>2 years</td>
<td>3 GCE ‘O’ Level Grades: Grade 1-7 in English Language Grade 1-7 in two other subjects [To be eligible for selection, applicants must have sat for Mathematics (Elementary or Additional)]</td>
</tr>
<tr>
<td><em>Higher Nitec</em> in Event Management</td>
<td>2 years</td>
<td>3 GCE ‘O’ Level Grades: Grade 1-7 in English Language Grade 1-7 in two other subjects [To be eligible for selection, applicants must have sat for Mathematics (Elementary or Additional)]</td>
</tr>
<tr>
<td><em>Higher Nitec</em> in Filmmaking (Cinematography)</td>
<td>2 years</td>
<td>3 GCE ‘O’ Level Grades: Grade 1-7 in English Language Grade 1-7 in two other subjects [To be eligible for selection, applicants must have sat for Mathematics (Elementary or Additional)]</td>
</tr>
<tr>
<td><em>Higher Nitec</em> in Financial Services</td>
<td>2 years</td>
<td>3 GCE ‘O’ Level Grades: Grade 1-7 in English Language Grade 1-7 in two other subjects [To be eligible for selection, applicants must have sat for Mathematics (Elementary or Additional)]</td>
</tr>
<tr>
<td><em>Higher Nitec</em> in Human Resource &amp; Administration</td>
<td>2 years</td>
<td>3 GCE ‘O’ Level Grades: Grade 1-7 in English Language Grade 1-7 in two other subjects [To be eligible for selection, applicants must have sat for Mathematics (Elementary or Additional)]</td>
</tr>
<tr>
<td><em>Higher Nitec</em> in International Logistics</td>
<td>2 years</td>
<td>3 GCE ‘O’ Level Grades: Grade 1-7 in English Language Grade 1-7 in two other subjects [To be eligible for selection, applicants must have sat for Mathematics (Elementary or Additional)]</td>
</tr>
</tbody>
</table>

The certificate will be awarded by the National Institute of Early Childhood Development (NIEC) in collaboration with ITE.
### Table 4A - Entry Requirements for 2-Year Higher Nitec Courses

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Duration</th>
<th>Minimum Entry Requirements</th>
</tr>
</thead>
</table>
| **Higher Nitec in**           | 2 years  | **Maritime Business** 5  
|                               |          | **Performance Production** 1 4 5  
|                               |          | **Retail & Online Business** 6  
|                               |          | **Service Management** 6  
|                               |          | **Sport Management** 2 6  |
|                               |          | 3 GCE ‘O’ Level Grades:  
|                               |          | Grade 1-7 in English Language  
|                               |          | Grade 1-8 in Mathematics (Elementary or Additional) or Principles of Accounts  
|                               |          | Grade 1-7 in one other subject  
|                               |          | [To be eligible for selection, applicants must have sat for Mathematics (Elementary or Additional)]  |
| **Higher Nitec in**           | 2 years  | **Interactive Design** 1 6  
|                               |          | **Visual Effects** 1 5  |
|                               |          | 3 GCE ‘O’ Level Grades:  
|                               |          | Grade 1-8 in English Language  
|                               |          | Grade 1-7 in Mathematics (Elementary or Additional) or Principles of Accounts  
|                               |          | Grade 1-8 in one other subject  
|                               |          | [To be eligible for selection, applicants must have sat for Mathematics (Elementary or Additional)]  |
| **Higher Nitec in**           | 2 years  | **Motion Graphics** 1 6  
|                               |          | **Visual Merchandising** 1 5  |
|                               |          | 3 GCE ‘O’ Level Grades:  
|                               |          | Grade 1-7 in English Language  
|                               |          | Grade 1-8 in two other subjects  
|                               |          | [To be eligible for selection, applicants must have sat for Mathematics (Elementary or Additional)]  |
| **Higher Nitec in**           | 2 years  | **Biotechnology** 5  
|                               |          | **Chemical Technology** 6  |
|                               |          | 3 GCE ‘O’ Level Grades:  
|                               |          | Grade 1-8 in English Language  
|                               |          | Grade 1-7 in Mathematics (Elementary or Additional)  
|                               |          | Grade 1-8 in one of the following subjects:  
|                               |          | [Biology; Biotechnology; Chemistry; Combined Science; Human & Social Biology;  
|                               |          | Integrated Science; Physics / Engineering Science; Science (Chemistry, Biology);  
|                               |          | Science (Physics, Biology); Science (Physics, Chemistry) / Physical Science;  
<p>|                               |          | Science (Physics, Biology, Chemistry)]  |</p>
<table>
<thead>
<tr>
<th>Course Title</th>
<th>Duration</th>
<th>Minimum Entry Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Higher Nitec in</strong></td>
<td>2 years</td>
<td>3 GCE ‘O’ Level Grades: Grade 1-8 in English Language Grade 1-7 in Mathematics (Elementary or Additional) Grade 1-8 in one of the following subjects: [Biology; Biotechnology; Chemistry; Combined Science; Computing / Computer Studies; Design &amp; Technology; Electronics / Fundamentals of Electronics; Human &amp; Social Biology; Integrated Science; Physics / Engineering Science; Science (Chemistry, Biology); Science (Physics, Biology); Science (Physics, Chemistry) / Physical Science; Science (Physics, Biology, Chemistry)]</td>
</tr>
<tr>
<td>AI Applications</td>
<td></td>
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<tr>
<td>Architectural Technology</td>
<td></td>
<td></td>
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<tr>
<td>Broadcast &amp; Media Technology</td>
<td></td>
<td></td>
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<tr>
<td>Business Information Systems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Civil &amp; Structural Engineering Design</td>
<td></td>
<td></td>
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<tr>
<td>Cyber &amp; Network Security</td>
<td></td>
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<tr>
<td>Data Engineering</td>
<td></td>
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<tr>
<td>Electrical Engineering</td>
<td></td>
<td></td>
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<tr>
<td>Electronics Engineering</td>
<td></td>
<td></td>
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<tr>
<td>Engineering with Business</td>
<td></td>
<td></td>
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<tr>
<td>Facility Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Games Art &amp; Design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Games Programming &amp; Development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integrated Mechanical &amp; Electrical Design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT Applications Development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT Systems &amp; Networks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Landscape Management &amp; Design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marine Engineering</td>
<td></td>
<td></td>
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<tr>
<td>Marine &amp; Offshore Technology</td>
<td></td>
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<tr>
<td>Mechanical Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechatronics Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Offshore &amp; Marine Engineering Design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rapid Transit Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Robotics &amp; Smart Systems</td>
<td></td>
<td></td>
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<tr>
<td>Security System Integration</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Nitec in Automotive Technology</strong></td>
<td>2 years</td>
<td>Nitec in Automotive Technology; Nitec in Automotive Technology (Heavy Vehicles); Nitec in Automotive Technology (Light Vehicles); Nitec in Aerospace Avionics; Nitec in Aerospace Technology; Nitec in Electrical Technology (Power &amp; Control); Nitec in Electronics, Computer Networking &amp; Communications; Nitec in Mechanical Technology; Nitec in Mechatronics; Nitec in Mechatronics &amp; Robotics; and Nitec in Rapid Transit Technology, with minimum GPA of 2.3 (inclusive of CCA bonus points)</td>
</tr>
<tr>
<td>Automotive Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course Title</td>
<td>Duration</td>
<td>Minimum Entry Requirements</td>
</tr>
<tr>
<td>--------------</td>
<td>----------</td>
<td>----------------------------</td>
</tr>
</tbody>
</table>
| **Higher Nitec in**  
  • Paramedic & Emergency Care 🌵  
  [1 2 3 5] | 1 year 6 months | *Nitec* in Nursing with minimum GPA of 2.3 (inclusive of CCA bonus points)  
  **OR**  
  3 GCE ‘O’ Level Grades:  
  Grade 1-8 in English Language  
  Grade 1-7 in Mathematics (Elementary/Additional)  
  Grade 1-8 in one other subject  
  [To be eligible for selection, you must have completed the Emergency Medical Technician course / Medical Orderly / Combat Medic Specialist course administered by SCDF or SAF or the WSQ Higher Certificate in Healthcare Support (PHEMS) or Emergency Medical Technician course approved by MOH, and possess minimum 1 year relevant work experience in emergency pre-hospital setting] |
| **Higher Nitec in**  
  • Culinary Arts 🍜  
  [2 3 5] | 1 year | *Nitec* in Asian Culinary Arts; *Nitec* in Culinary Skills (Western); and *Nitec* in Western Culinary Arts, with minimum GPA of 2.8 (inclusive of CCA bonus points) |
| **Higher Nitec in**  
  • Pastry & Baking 🍪  
  [2 3 5] | 1 year | *Nitec* in Pastry & Baking with minimum GPA of 2.8 (inclusive of CCA bonus points) |
| **Higher Nitec in**  
  • Precision Engineering 🌱 | 1 year | *Nitec* in Aerospace Machining Technology; *Nitec* in Digital & Precision Engineering; *Nitec* in Laser & Tooling Technology; *Nitec* in Machine Technology; *Nitec* in Medical Manufacturing Technology; and *Nitec* in Precision Engineering, with minimum GPA of 2.8 (inclusive of CCA bonus points) |

① Applicants for these courses must ensure that they are free from colour appreciation deficiency.  
② Applicants must pass a pre-admission medical examination.  
③ Applicants must attend an interview for admission.  
④ Applicants for this course must ensure that they are free from acrophobia.  
⑤ As all ITE courses will incorporate online learning as part of lesson delivery, students are advised to have access to a PC/Laptop for their learning. Financial assistance is available to eligible students under ITE Opportunity Fund to purchase PC/Laptop subject to terms and conditions.
For students who have performed well in the GCE ‘N’ (Academic) Level examination and who would like to benefit from a more hands-on preparation at ITE, they may first enrol in a 2-year *Higher Nitec* with a 10-week preparatory course at ITE.

Students will subsequently be assured of a first year place in a related polytechnic course if they achieve the qualifying Grade Point Average (GPA).

Upon the release of GCE ‘N(A)’ Level results, Secondary 4 N(A) students may apply for the Direct Entry Scheme to Polytechnic Programme (DPP) based on their GCE ‘N(A)’ Level final examination results and school-based ‘O’ Level preliminary results (if applicable). Successful applicants will enrol in ITE in January 2022 for a 10-week preparatory course, before joining the *Higher Nitec* course in April 2022. Details on the entry requirements of the *Higher Nitec* courses under DPP are given in Table 4B. In order to be assured a place in the polytechnics, students must meet the qualifying *Higher Nitec* GPA shown in the table below.

### Qualifying *Higher Nitec* GPA for Progression to Polytechnics under DPP

<table>
<thead>
<tr>
<th>2-Year <em>Higher Nitec</em> Courses</th>
<th>Progress to first-year in relevant Polytechnic Diploma course*</th>
<th>Progress to second-year in relevant Polytechnic Diploma course*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Sciences #</td>
<td>ITE raw GPA ≥ <strong>2.5 points</strong> (excluding CCA bonus points^)</td>
<td>N.A.</td>
</tr>
<tr>
<td>Engineering or Info-Communications Technology #</td>
<td>ITE raw GPA ≥ <strong>2.5 points</strong> (excluding CCA bonus points^)</td>
<td>ITE raw GPA ≥ <strong>3.5 points</strong> (excluding CCA bonus points^)</td>
</tr>
<tr>
<td>Business &amp; Services</td>
<td>ITE raw GPA ≥ <strong>3.0 points</strong> (excluding CCA bonus points^)</td>
<td>N.A.</td>
</tr>
</tbody>
</table>

* For *Higher Nitec* DPP courses in Applied Sciences, Engineering and Info-Communications Technology, in addition to the qualifying GPAs, students are required to take up and pass a Mathematics elective at ITE to be eligible to articulate into polytechnic courses under the DPP. GCE ‘N(A)’ students with at least a grade C in GCE ‘O’ Level Mathematics will be exempted from this requirement.

* Please refer to [https://www.ite.edu.sg](https://www.ite.edu.sg) for the progression to the related Polytechnic Diploma courses. DPP students who successfully complete the *Higher Nitec* courses and attain the required minimum qualifying *Higher Nitec* GPA scores are guaranteed a place in the 1st Year relevant polytechnic diploma courses that are mapped to their *Higher Nitec* courses. Students who meet the minimum qualifying GPA for 2nd Year entry are not guaranteed admission into Year 2 of one of the mapped courses. Admission is based on merit, subject to vacancies in the courses.

^ CCA Grades will be used for computing the student’s net GPA at ITE for the selection and posting to a Polytechnic Diploma course.
### Table 4B – Entry Requirements for 2-Year Higher Nitec Courses for Sec 4 N(A) Level Holders under Direct Entry Scheme to Polytechnic Programme (DPP)

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Duration</th>
<th>Minimum Entry Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Higher Nitec in</strong></td>
<td></td>
<td>A total of 19 points or less for English Language, Mathematics and 3 other subjects (ELMAB3), excluding CCA points in the GCE ‘N(A)’ Level examinations:</td>
</tr>
<tr>
<td>Applied Sciences</td>
<td></td>
<td>ELMAB3 aggregate score is:</td>
</tr>
<tr>
<td>• Chemical Technology</td>
<td>2¼ years (10 weeks of preparatory course followed by 2 years Higher Nitec course training)</td>
<td>Grade 1-4 in English Language</td>
</tr>
<tr>
<td>Engineering</td>
<td></td>
<td>Grade 1-4 in Mathematics</td>
</tr>
<tr>
<td>• Civil &amp; Structural Engineering Design</td>
<td></td>
<td>Grade 1-5 in three other subjects</td>
</tr>
<tr>
<td>• Electrical Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Electronics Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Mechanical Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Mechatronics Engineering</td>
<td></td>
<td></td>
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<tr>
<td>Info-Comm Technology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Business Information Systems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Cyber &amp; Network Security</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Games Art &amp; Design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• IT Applications Development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• IT Systems &amp; Networks</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Higher Nitec in</strong></td>
<td></td>
<td>A total of 19 points or less for English Language, Mathematics and 3 other subjects (ELMAB3), excluding CCA points in the GCE ‘N(A)’ Level examinations:</td>
</tr>
<tr>
<td>Business &amp; Services</td>
<td></td>
<td>ELMAB3 aggregate score is:</td>
</tr>
<tr>
<td>• Accounting</td>
<td>2¼ years (10 weeks of preparatory course followed by 2 years Higher Nitec course training)</td>
<td>Grade 1-3 in English Language</td>
</tr>
<tr>
<td>• Event Management</td>
<td></td>
<td>Grade 1-4 in Mathematics</td>
</tr>
<tr>
<td>• Financial Services</td>
<td></td>
<td>Grade 1-5 in three other subjects</td>
</tr>
<tr>
<td>• Hospitality Operations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• International Logistics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Leisure &amp; Travel Operations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Service Management</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

① Applicants for these courses must ensure that they are free from colour appreciation deficiency.
② As all ITE courses will incorporate online learning as part of lesson delivery, students are advised to have access to a PC/Laptop for their learning. Financial assistance is available to eligible students under ITE Opportunity Fund to purchase PC/Laptop subject to terms and conditions.
Starting with selected courses in Academic Year 2022, ITE will offer a new curricular structure that will allow students to directly graduate with a Higher Nitec qualification after three years of training, instead of the current four years. Students enrolled in 3-year Higher Nitec courses will undertake broad-based foundation courses exposing them to fundamental skills needed for the relevant industry sector in Year 1. In Years 2 and 3, they will then take more specialised modules, leading to a Higher Nitec certification.

The 3-year Higher National ITE Certificate (Higher Nitec) and 2-year National ITE Certificate (Nitec) courses are for GCE ‘N’ and GCE ‘O’ Level holders who meet the entry requirements.

Details on the entry requirements of the 3-year Higher Nitec and 2-year Nitec courses are given in Table 5A.

Table 5A – Entry Requirements for 3-Year Higher Nitec and 2-Year Nitec Courses

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Duration</th>
<th>Minimum Entry Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Higher Nitec in</strong></td>
<td>3 years</td>
<td>3 GCE ‘N’ Level Passes (Grade A-D or Grade 1-5) in English Language and two other subjects OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects</td>
</tr>
<tr>
<td>• Accounting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Sport Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Higher Nitec in</strong></td>
<td>3 years</td>
<td>3 GCE ‘N’ Level Passes (Grade A-D or Grade 1-5) in Mathematics or Science* and two other subjects OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects</td>
</tr>
<tr>
<td>• Business Information Systems</td>
<td></td>
<td>* Mobile Robotics and Smart Electrical Technology subjects can be used in lieu of Science for admission to these 3-year Higher Nitec courses</td>
</tr>
<tr>
<td>• Cyber &amp; Network Security</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Electronics Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• IT Applications Development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• IT Systems &amp; Networks</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Higher Nitec in</strong></td>
<td>3 years</td>
<td>Completed GCE ‘N’ or GCE ‘O’ Level</td>
</tr>
<tr>
<td>• Security System Integration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course Title</td>
<td>Duration</td>
<td>Minimum Entry Requirements</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>----------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Nitec in</strong></td>
<td>2 years</td>
<td>3 GCE ‘N’ Level Passes (Grade A-D or Grade 1-5) in English Language, Mathematics and one other subject OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects</td>
</tr>
<tr>
<td>Nursing</td>
<td>2 years</td>
<td>3 GCE ‘N’ Level Passes (Grade A-D or Grade 1-5) in English Language and two other subjects OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects</td>
</tr>
<tr>
<td>Business Services</td>
<td>2 years</td>
<td>3 GCE ‘N’ Level Passes (Grade A-D or Grade 1-5) in Mathematics or Science* and two other subjects OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects</td>
</tr>
<tr>
<td>Floristry</td>
<td>2 years</td>
<td>3 GCE ‘N’ Level Passes (Grade A-D or Grade 1-5) in Mathematics or Science* and two other subjects OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects</td>
</tr>
<tr>
<td>Hospitality Operations</td>
<td>2 years</td>
<td>3 GCE ‘N’ Level Passes (Grade A-D or Grade 1-5) in Mathematics or Science* and two other subjects OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects</td>
</tr>
<tr>
<td>Pastry &amp; Baking</td>
<td>2 years</td>
<td>3 GCE ‘N’ Level Passes (Grade A-D or Grade 1-5) in Mathematics or Science* and two other subjects OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects</td>
</tr>
<tr>
<td>Travel &amp; Tourism Services</td>
<td>2 years</td>
<td>3 GCE ‘N’ Level Passes (Grade A-D or Grade 1-5) in Mathematics or Science* and two other subjects OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects</td>
</tr>
<tr>
<td>Visual Communication</td>
<td>2 years</td>
<td>3 GCE ‘N’ Level Passes (Grade A-D or Grade 1-5) in Mathematics or Science* and two other subjects OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects</td>
</tr>
<tr>
<td>Western Culinary Arts</td>
<td>2 years</td>
<td>3 GCE ‘N’ Level Passes (Grade A-D or Grade 1-5) in Mathematics or Science* and two other subjects OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects</td>
</tr>
<tr>
<td>Nursing</td>
<td>2 years</td>
<td>3 GCE ‘N’ Level Passes (Grade A-D or Grade 1-5) in Mathematics or Science* and two other subjects OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects</td>
</tr>
<tr>
<td>Aerospace Technology</td>
<td>2 years</td>
<td>3 GCE ‘N’ Level Passes (Grade A-D or Grade 1-5) in Mathematics or Science* and two other subjects OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects</td>
</tr>
<tr>
<td>Architectural Technology</td>
<td>2 years</td>
<td>3 GCE ‘N’ Level Passes (Grade A-D or Grade 1-5) in Mathematics or Science* and two other subjects OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects</td>
</tr>
<tr>
<td>Electrical Technology (Lighting &amp; Sound)</td>
<td>2 years</td>
<td>3 GCE ‘N’ Level Passes (Grade A-D or Grade 1-5) in Mathematics or Science* and two other subjects OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects</td>
</tr>
<tr>
<td>Electrical Technology (Power &amp; Control)</td>
<td>2 years</td>
<td>3 GCE ‘N’ Level Passes (Grade A-D or Grade 1-5) in Mathematics or Science* and two other subjects OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects</td>
</tr>
<tr>
<td>Interior &amp; Exhibition Design</td>
<td>2 years</td>
<td>3 GCE ‘N’ Level Passes (Grade A-D or Grade 1-5) in Mathematics or Science* and two other subjects OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects</td>
</tr>
<tr>
<td>Aerospace Machining Technology</td>
<td>2 years</td>
<td>3 GCE ‘N’ Level Passes (Grade A-D or Grade 1-5) in Mathematics or Science* and two other subjects OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects</td>
</tr>
<tr>
<td>Applied Food Science</td>
<td>2 years</td>
<td>3 GCE ‘N’ Level Passes (Grade A-D or Grade 1-5) in Mathematics or Science* and two other subjects OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects</td>
</tr>
<tr>
<td>Chemical Process Technology</td>
<td>2 years</td>
<td>3 GCE ‘N’ Level Passes (Grade A-D or Grade 1-5) in Mathematics or Science* and two other subjects OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects</td>
</tr>
<tr>
<td>Community Care &amp; Social Services</td>
<td>2 years</td>
<td>3 GCE ‘N’ Level Passes (Grade A-D or Grade 1-5) in Mathematics or Science* and two other subjects OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects</td>
</tr>
<tr>
<td>Digital &amp; Precision Engineering</td>
<td>2 years</td>
<td>3 GCE ‘N’ Level Passes (Grade A-D or Grade 1-5) in Mathematics or Science* and two other subjects OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects</td>
</tr>
<tr>
<td>Fashion Apparel Production &amp; Design</td>
<td>2 years</td>
<td>3 GCE ‘N’ Level Passes (Grade A-D or Grade 1-5) in Mathematics or Science* and two other subjects OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects</td>
</tr>
<tr>
<td>Mechatronics &amp; Robotics</td>
<td>2 years</td>
<td>3 GCE ‘N’ Level Passes (Grade A-D or Grade 1-5) in Mathematics or Science* and two other subjects OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects</td>
</tr>
<tr>
<td>Opticianry</td>
<td>2 years</td>
<td>3 GCE ‘N’ Level Passes (Grade A-D or Grade 1-5) in Mathematics or Science* and two other subjects OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects</td>
</tr>
<tr>
<td>Rapid Transit Technology</td>
<td>2 years</td>
<td>3 GCE ‘N’ Level Passes (Grade A-D or Grade 1-5) in Mathematics or Science* and two other subjects OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects</td>
</tr>
<tr>
<td>Video Production</td>
<td>2 years</td>
<td>3 GCE ‘N’ Level Passes (Grade A-D or Grade 1-5) in Mathematics or Science* and two other subjects OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects</td>
</tr>
</tbody>
</table>

* Mobile Robotics and Smart Electrical Technology subjects can be used in lieu of Science for admission to these Nitec courses.
### Table 5A – Entry Requirements for 3-Year Higher Nitec and 2-Year Nitec Courses

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Duration</th>
<th>Minimum Entry Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitec in</td>
<td>2 years</td>
<td>Completed GCE ‘N’ or GCE ‘O’ Level</td>
</tr>
<tr>
<td>• Asian Culinary Arts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Automotive Technology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Beauty &amp; Wellness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Built Environment (Mechanical &amp; Electrical Services)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Built Environment (Vertical Transportation)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Digital Animation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Hair Fashion &amp; Design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Logistics Services</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Mechanical Technology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Product Design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Retail Services</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Urban Greenery &amp; Landscape</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Applicants for these courses must ensure that they are free from colour appreciation deficiency.
2. Applicants must attend an interview and pass a pre-admission medical examination.
3. Applicants must pass a pre-admission medical examination.
4. Applicants must attend an interview and aptitude test for admission.
5. Applicants must attend an interview for admission.
6. Successful students will be required to purchase Training Materials (which will cost about $800 for Fashion Apparel Production & Design, $400 for Beauty & Wellness, $300 for Asian Culinary Arts and $300 for Western Culinary Arts) for the 2-year courses. This is in addition to the course fees. Financial assistance is available to eligible students subject to terms and conditions.
7. As all ITE courses will incorporate online learning as part of lesson delivery, students are advised to have access to a PC/Laptop for their learning. Financial assistance is available to eligible students under ITE Opportunity Fund to purchase PC/Laptop subject to terms and conditions.
The 3-Year Nitec Courses with Enhanced Nitec Foundation Programme is an initiative by ITE to help ‘N(T)’ students with 0 or 1 GCE’N’ level pass build the necessary literacy and numeracy foundations that will enable them to successfully complete their Nitec courses. Students who opt for the 3-Year Nitec Courses with Enhanced Nitec Foundation Programme will spend a total of three years at ITE for their Nitec course, instead of the usual two years. They will undergo two years of foundation training before progressing to take the Career Core curriculum in the third year. Courses offered under the 3-Year Nitec Courses with Enhanced Nitec Foundation Programme and details on the entry requirements are given in Table 5B.

### Table 5B – Entry Requirements for 3-Year Nitec Courses with Enhanced Nitec Foundation Programme

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Duration</th>
<th>Minimum Entry Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitec in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Built Environment (Mechanical &amp; Electrical Services)</td>
<td>3 years</td>
<td>0 or 1 GCE ‘N(T)’ Level pass</td>
</tr>
<tr>
<td>• Mechanical Technology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Retail Services</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

① Applicants for these courses must ensure that they are free from colour appreciation deficiency.
② As all ITE courses will incorporate online learning as part of lesson delivery, students are advised to have access to a PC/Laptop for their learning. Financial assistance is available to eligible students under ITE Opportunity Fund to purchase PC/Laptop subject to terms and conditions.
CURRICULUM STRUCTURE

The ITE curriculum and pedagogic model was redefined in response to the changing needs of school leavers and the knowledge-based economy.

ITE PEDAGOGIC MODEL

In adopting a holistic ‘Hands-on, Minds-on, Hearts-on’ technical education, ITE believes that the curriculum and pedagogy must go beyond the acquisition of technical knowledge and skills. Equally important for the global economy are the values for lifelong learning with life skills such as communications, interpersonal skills, planning, organization, problem solving, teamwork and innovation. ITE courses are practice-oriented and skills-based. The curriculum of a typical course comprises of 80% core modules in an area of study, 15% life skills and 5% elective modules. These technical and life skills are learned and acquired in an integrated manner through a pedagogic model, involving Planning, Exploring, Practicing and Performing, with Enquiry and Reflection taking place throughout the process, also referred to as the “PEPPER” model.

Under the guidance of a lecturer, the student plans what needs to be learned for a whole task, explores the supporting knowledge required, practises how to apply what he has learned and finally performs the whole task to demonstrate competence. The teaching approach is interactive and process-based. Through this pedagogic approach, the student acquires the key competencies, namely, technical, methodological, social and personal, to be work-ready.

ITE CAREER CLUSTER-BASED CURRICULUM FRAMEWORK

The Career Cluster-based Curriculum Framework (CCF) involves a fundamental shift in the way ITE prepares students for the workforce. ITE will move from training students for a ‘single occupation’ to training students for a ‘cluster’ or grouping of related occupations industries based on common skills and knowledge. Career Clustering will become the fundamental premise by which ITE organises, plans and designs courses.

Students will be provided with a strong foundation of essential life skills and broad horizontal skills of related occupations under a specific cluster. At the more advanced levels of training, students will deepen their skills in a chosen area of expertise.

Features of Career Cluster-based Curriculum Framework

Each Career Cluster has several Career Pathways within which are numerous Career Specialisations, each offering some specific and others, advanced skill learning. Skills learned at the Cluster level can be transferred to other career specialisations within the Cluster. This is made possible as the skills sets are clustered closely according to a wider range of related career possibilities. This will facilitate lifelong learning, cross-training and alternative pathways for progression – thus ensuring a higher likelihood of success at work and continual employability.

- **Career Pathways for Nitec Courses**

  GCE ‘O’/’N’ Level students who qualify for a Nitec course, the curriculum is designed to encompass two levels of skills and knowledge: Foundation and Career Core.

  At the Foundation level, students will acquire skills and knowledge that cut across all pathways encompassed in the cluster. This also includes Essential Lifeskills and Career Pathway. The next level, Career Core, will lead the students towards more specific career choices. After the Career Core level, students can either exit with a Nitec certificate to gain employment or progress to the next level at Higher Nitec to learn, Advanced Career Core, which is designed for specialised workplace skills.

- **Career Pathways for Higher Nitec Courses**

  For students who qualify for a Higher Nitec course, the curriculum is designed to encompass two levels of skills and knowledge: Career Core and Advanced Career Core.

- **Career Pathways for Progression from Nitec to Higher Nitec Course**

  Under this career cluster approach, Nitec graduates with GPA score ≥ 3.0 may now gain direct progression to Year 2 of related Higher Nitec courses. Students who are not able to gain direct progression to Year 2 of Higher Nitec courses may begin their studies from Year 1 with relevant module exemption, where applicable.
Advantages of Career Cluster-Based Curriculum Framework

Career clustering prepares every student to succeed in the 21st century workplace through skills and knowledge that are in step with a rapidly changing business, economic and technological environment. Through having skills needed in the broad spectrum of careers for the cluster, ITE graduates entering the workforce will be more versatile, be better prepared to learn on the job and to progress in their chosen career through lifelong learning. The advantages of doing so are:

- **Better preparation of graduates for career and educational advancement**;
- **Saving of time for students** – The explicit articulation between levels of training (Nitec to Higher Nitec) minimises duplication of content and allows for greater degree of recognition of learning from one level to the other level. GCE ‘N’ level students can achieve a broader range and higher level of skills set within a shorter timeframe of three years instead of four years, if they perform well in their respective courses;
- **More varied learning and applications** – The provision of cross-functional and multidisciplinary skills within a career cluster provides greater opportunity for students to benefit from the different styles of teaching and learning and incorporate possible innovations into curriculum instruction to enhance student learning; and
- **Greater productivity and cost effectiveness** – ITE can review courses and prepare learning resources, by cluster instead of individual courses.

**TERM-BASED CREDIT SYSTEMS OF TRAINING**

ITE’s full-time courses are conducted on a Term-Based Credit System of Training (TCT). This system of training offers flexibility, choice and diversity in learning. In TCT, a course of study is structured into a series of modules. When students pass a module, they will earn credits assigned to that module. Assessment of module is on a term basis. When the students have accumulated the required number of credits in modules relevant to the course of study within the specific duration, they are deemed to have met the requirements of the course for graduation.

Generally, an average student under the full-time institutional training mode should be able to complete all the prescribed modules within the duration of the course.

There is provision for students to take up an additional year of full-time training to complete all the required modules of a course if they are unable to accumulate the stipulated credits at the end of the course.

**TYPES OF MODULE**

A module is a self-contained unit of study, covering selected topics of a subject area. The modules are classified into the following categories:

**Core Modules**

These are modules that will help students build a firm foundation in the core discipline of studies. Students must pass all these modules in order to qualify for the certificate.

**Specialisation Modules**

These modules will help students to develop specific focus and fields of specialisation within the course. They are compulsory and accountable for full certification. Students should select the modules that match their interest and learning ability.

**Life Skills Modules**

Life Skills in broad terms are the foundation skills and personal qualities that an individual can transfer from one job setting to another, and to manage and adapt to changes in technology and work environments.

**Elective Modules**

These elective modules will allow students to broaden and deepen their field of study. Students should select the modules that match their interest and learning ability. Students are required to obtain a minimum number of credits from elective modules for certification. Elective modules available for selection will be communicated to the students by their College.

**MODULE EXEMPTION**

Students who have acquired the related knowledge and skills for a particular module through prior learning can apply for module exemption upfront and before they commence the training for the course. The application is to be submitted to the Section Head of their course of study. The maximum number of module credits exempted for an ITE course (from a non-ITE course) should not exceed 50% of the total credit units required for the full certification of the course.

Students who are representing Singapore in sports and games and need to attend related training can apply for exemption from the Sports and Wellness module. The exemption will be granted for one academic year only. Students may re-apply for the exemption in the second year provided they still meet the eligibility condition of participating in a competitive sport or game at the national level. Notwithstanding the exemption granted for Sports and Wellness, all students are required to undergo the NAPFA test.
ASSESSMENT & EXAMINATION

ASSESSMENT FOR MODULES

Assessment for each module will be based on:
• In-module assessments
• End-of-module examination

The pass mark for each module is 50% (or other marks as determined by the course) and is based on the weighted aggregate score of the in-module assessments and end-of-module examination. The weightage for in-module assessments and end-of-module examination varies for each module.

In-Module Assessments
In-module assessments encompass different modes of assessments such as class test, written assignment, phase test, practical assignment, portfolio assignment, project and/or oral presentation. The number of in-module assessments varies from course to course and may be completed individually or in groups.

Besides having to attain a minimum score of 50% or other marks as determined by the course, students are also required to pass all critical skills stipulated for the module.

End-of-Module Examination
End-of-module examination is a summative testing of competencies covered in the module. It is to assess how well a student can integrate the various competencies and knowledge acquired in the module.

Eligibility Criteria for End-of-Module Examination
To be eligible for end-of-module examination, students must achieve a minimum attendance of 80%.

Grading System for Modules
The Grade Point Average (GPA) represents a student’s current standing in the course of study. It is the ratio of the total grade points to total credits attempted to date. The final GPA score at the point of graduation determines the overall course performance. Tables 6A, 6B and 6C show the grading scale for each module.

Table 6A – Grading for Higher Nitec and Nitec Courses

<table>
<thead>
<tr>
<th>Grade, Specialisation and Elective Modules</th>
<th>Grade</th>
<th>Grade Scale</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DISTINCTION</td>
<td>A</td>
<td>4</td>
<td>Distinction</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>Excellent</td>
</tr>
<tr>
<td>B</td>
<td></td>
<td>3</td>
<td>Very Good</td>
</tr>
<tr>
<td>C</td>
<td></td>
<td>2</td>
<td>Good</td>
</tr>
<tr>
<td>D</td>
<td></td>
<td>1</td>
<td>Pass</td>
</tr>
<tr>
<td>E</td>
<td></td>
<td>1</td>
<td>Subsidiary Pass</td>
</tr>
<tr>
<td>F</td>
<td></td>
<td>0</td>
<td>Fail</td>
</tr>
</tbody>
</table>

• ‘DISTINCTION’ grade is awarded to top 5% of candidates who sat for Higher Nitec and Nitec modules with marks awarded and graded A to F, including IA – Pre-Enrolment Clinical Practice and IA – Clinical Practice modules.
• ‘DISTINCTION’ grade is not applicable to On-the-Job Training (OJT), Industry Attachment (IA) and any other modules as stated in the Assessment Scheme.

<table>
<thead>
<tr>
<th>Grade, Core and Elective Modules</th>
<th>Grade</th>
<th>Grade Scale</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td></td>
<td>Not applicable</td>
<td>Pass</td>
</tr>
<tr>
<td>F</td>
<td></td>
<td>Fail</td>
<td></td>
</tr>
</tbody>
</table>

‘P/F’ grades are applicable to cross-level electives, diploma electives, special project electives, overseas electives, selected Joint ITE-Industry electives and any other modules as stated in the Assessment Scheme.

<table>
<thead>
<tr>
<th>Grade, Life Skills Core and Elective Modules</th>
<th>Grade</th>
<th>Grade Scale</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td>4</td>
<td>Excellent</td>
</tr>
<tr>
<td>B</td>
<td></td>
<td>3</td>
<td>Very Good</td>
</tr>
<tr>
<td>C</td>
<td></td>
<td>2</td>
<td>Good</td>
</tr>
<tr>
<td>D</td>
<td></td>
<td>1</td>
<td>Pass</td>
</tr>
<tr>
<td>F</td>
<td></td>
<td>0</td>
<td>Fail</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grade, Life Skills Core and Elective Modules</th>
<th>Grade</th>
<th>Grade Scale</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td></td>
<td>Not applicable</td>
<td>Satisfactory</td>
</tr>
<tr>
<td>U</td>
<td></td>
<td>Not applicable</td>
<td>Un satisfactory</td>
</tr>
</tbody>
</table>

‘S/U’ grades are applicable to Sports & Wellness modules and LifeSkills elective modules.
Table 6B – Grading Table for Work-Study Diploma Courses (with effect from April 2018 intake)

<table>
<thead>
<tr>
<th>Grade</th>
<th>Grade Scale</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4</td>
<td>Excellent</td>
</tr>
<tr>
<td>B</td>
<td>3</td>
<td>Very Good</td>
</tr>
<tr>
<td>C</td>
<td>2</td>
<td>Good</td>
</tr>
<tr>
<td>D</td>
<td>1</td>
<td>Pass</td>
</tr>
<tr>
<td>F</td>
<td>0</td>
<td>Fail</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grade</th>
<th>Grade Scale</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4</td>
<td>Excellent</td>
</tr>
<tr>
<td>B</td>
<td>3</td>
<td>Good</td>
</tr>
<tr>
<td>C</td>
<td>2</td>
<td>Pass</td>
</tr>
<tr>
<td>F</td>
<td>0</td>
<td>Fail</td>
</tr>
</tbody>
</table>

Table 6C – Grading Table for Work Situation-based Work-Study Diploma Courses (with effect from April 2020 intake)

<table>
<thead>
<tr>
<th>Grade</th>
<th>Grade Scale</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DISTINCTION</td>
<td>4</td>
<td>Distinction</td>
</tr>
<tr>
<td>A</td>
<td>4</td>
<td>Excellent</td>
</tr>
<tr>
<td>B</td>
<td>3</td>
<td>Very Good</td>
</tr>
<tr>
<td>C</td>
<td>2</td>
<td>Good</td>
</tr>
<tr>
<td>D</td>
<td>1</td>
<td>Pass</td>
</tr>
<tr>
<td>UG</td>
<td>0</td>
<td>Ungraded</td>
</tr>
</tbody>
</table>

Distinction is not applicable to OJT.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Grade Scale</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Pass</td>
<td>4</td>
<td>High Pass</td>
</tr>
<tr>
<td>Pass</td>
<td>2</td>
<td>Pass</td>
</tr>
<tr>
<td>UG</td>
<td>0</td>
<td>Ungraded</td>
</tr>
</tbody>
</table>

EXAMINATION REGULATIONS

All candidates taking examinations of the Institute of Technical Education (ITE) must comply with the following rules. Candidates who fail to observe any of these rules may be disqualified from the examinations.

Examination Schedule
Candidates are responsible for presenting themselves for examination on the date and time shown in My Exam Schedule via myITE Portal and report at least 20 minutes before the examination time.

Before Examination Day (for computer-based examinations)
Candidates should access the online practice examination via myITE Portal at [https://for.edu.sg/ite-student-portal](https://for.edu.sg/ite-student-portal) to familiarise with taking computer-based examinations.

Computer-based examinations are accessed through myITE Portal. Candidates should ensure correct password is used to access the portal. Otherwise, candidates may lose time to reset password.

Before the Start of Examination
Only candidates who have registered for the examination are permitted to enter the examination venue.

Candidates must bring their photo ID (e.g. physical or digital NRIC/Work Pass/Student Pass; or ITE Student EZ-Link Card) for identification. International candidates whose Student Pass or Work Pass has expired before the examination can seek approval from their Section Head to use Passport for identification instead. The candidates must still write or shade their FIN on the answer scripts/practical works.

Candidates are to place their physical photo ID on their desk throughout the examination for verification by Invigilator. If the identity of the candidate is in doubt, Invigilator may take a photograph of the candidate for separate verification.

Candidates using their digital IC in the Singpass app via their mobile device should unmask their NRIC No./FIN for verification and attendance taking by Invigilator before they are allowed to enter the examination venue.

Candidates will be asked to leave the examination venue if their identification documents do not belong to them.

Candidates must be properly attired when they turn up for the examination. Full-time candidates are required to be in their College uniform when sitting for the examination in their College. Otherwise, they may be barred from the examination.

Candidates are not permitted to eat, drink or smoke in the examination venue.
Candidates taking computer-based examinations should also refer to ‘Additional Instructions on Computer-based Examinations’ and pay attention to the additional instructions announced by the Presiding Examiner or Invigilator at the examination venue before commencement of examination.

Candidates are not allowed to bring instruction manuals, external storage media and other peripherals into the examination venue. They are not allowed to possess books, documents, pictures, notes or any unauthorised materials other than those provided by the Presiding Examiner or Invigilator. Electronic and communication devices (e.g. mobile phones, cameras, tablets, smart wrist watches/glasses, pen with image capturing capabilities etc.) that are capable of displaying and/or transmitting visual or audio information are also not allowed. Any candidates found to be in possession of such materials and devices are considered as dishonest and liable to the same penalty as those detected for dishonesty during examinations. If communication devices are left at the front or back of the hall/room, they must be switched off. ITE will not be responsible for any loss of personal belongings.

Candidates are permitted to use only non-programmable electronic calculators that are silent. Calculators that give out sound, need external power supply or transmit signals are strictly prohibited. Calculators must not be used for the retrieval of stored data, text or instructions or for the graphical representation of functions and data. Candidates should refer to the guidelines on the features of calculators that are not permitted for use in ITE examinations.

**Paper-based Examinations**
Candidates are given about 10 minutes before the scheduled examination start time to read the question paper. Candidates must not start writing until instructed to do so by the Presiding Examiner or Invigilator.

**Computer-based Examinations**
Candidates are given about 10 minutes to read the Administrative Instructions page, and Exam Paper Instructions displayed on candidates’ screens. At the start time of the examination, the system will allow candidates to begin the examination.

Candidates must inform the Presiding Examiner or Invigilator immediately if they are not issued the correct module examination or supplementary materials (e.g. formulae sheet).

**During the Examination**
No candidate is allowed to enter the examination venue after 30 minutes have lapsed from the scheduled start time of the examination.

 Candidates may leave the examination venue after 30 minutes from the start of the examination. They will not be allowed to return to the examination venue unless an Invigilator or a person authorised by the Presiding Examiner has accompanied them while they are away. For computer-based examination, the candidates who temporarily leave the examination venue escorted by an Invigilator must navigate to the Progress Summary page to protect their responses.

Candidates must not, for any reason, communicate with other candidates during the examination. Candidates shall not do anything which causes unnecessary distraction to other candidates. Candidates who are guilty of improper conduct or misbehave themselves may be expelled from the examination venue.

Candidates who wish to communicate with an Invigilator must remain seated and raise their hands.

Candidates are not allowed to borrow stationery and mathematical instruments such as rulers and calculators from other candidates during the examination.
Candidates should note that legible handwriting is taken into account for the award of marks for paper-based examination. Candidates should use black or blue ballpoint pen during the examinations. Candidates are also reminded to use a soft-lead pencil (e.g. 2B) to shade their answers on the Answer Sheet. A soft eraser should be used for erasure if candidates wish to change their answers. It is the responsibility of the candidates to ensure that answers are presented clearly in Answer Sheet / Answer Scripts for marking.

Candidates will not be given extra time for printing of responses for submission (if required).

Candidates will be stopped from proceeding further in the practical examination if they continue to adopt an unsafe or dangerous method of operation despite warning. An unsafe or dangerous method of operation is one which may injure candidates or cause damage to machines or equipment.

Candidates are liable for any damage to machines, tools and equipment arising from their negligence.

**At the End of the Examination**
Candidates who are allowed into the examination venue within 30 minutes after scheduled start time of the examination will not be given extra time at the end of examination. After the first 30 minutes from start of examination, candidates must raise their hand if he/she has completed the examination. Once confirmed by the Invigilator, the candidate can leave the examination venue.

**Paper-based Examinations**
No candidate is allowed to leave the examination venue during the last 15 minutes of the examination. This is to facilitate the administration and collection of answer scripts. Candidates should stop writing/working immediately when instructed by the Presiding Examiner or Invigilator.

Candidates should remain seated while the answer scripts/practical works are being collected.

Candidates should not take question paper, used and unused answer booklets or any items issued by the Invigilator out of the examination venue unless otherwise stated.

**Computer-based Examinations**
Candidates will have their responses auto-submitted if he/she has not submitted at the examination end time. Candidates must not exit the application or shut down the PC/notebook.

For examinations where more than one relay is carried out, candidates are not allowed to leave until the end of the examination, unless otherwise instructed by the Presiding Examiner or Invigilator.

Candidates can leave the examination venue only after they have been told to do so by the Presiding Examiner or Invigilator.

**Academic Dishonesty**
A candidate is guilty of dishonesty if he/she cheats or attempts to cheat during the examination.

Candidates found guilty of dishonesty will be graded ‘Fail’ and may face disciplinary action.

**Posting of Examination Material Online**
Candidates are not allowed to post any examination-related copyright material (e.g. whole or part of question(s), question paper, answer script) on any social media or web page. Candidates who are found doing so will be subject to disciplinary action.

**Deferment of Examination**
Candidates who are unable to sit for the examination but have a valid reason can seek for deferment to the next examination series. Candidates are to submit their request to their Section Head for approval before the date of examination.

For reason of absence which cannot be known beforehand, candidates must submit their applications with supporting documents within the next two working days from the date of examination. The supporting documents should preferably be the original copy. In cases where the supporting document is required by more than one party (e.g. more than one college/department for examinations at different colleges), photocopy of the supporting document can be accepted. However, the photocopy must be certified as true copy by an ITE staff who are designated as Lecturers and above after original copy is sighted.

**Absence from Examination**
Candidates who are absent from an end-of-module examination without ITE’s approval will be considered to have failed the module.
Infectious Diseases and Hospitalised Candidates
Candidates who are suffering from any infectious disease (e.g. chickenpox) are not allowed to sit for examination at the assigned examination venue. Arrangement for a hospitalised candidate to sit for examination will be considered on case-by-case basis. For SARS, H1N1, COVID-19 or other infectious diseases advised by MOH, additional instructions will be issued where necessary for compliance.

Major Train Service Disruption
In the event of major train service disruption, candidates should still make their way to their examination venues. Candidates may be allowed to take the examination with full duration given if they arrive before the end of the examination and no other candidates have left the examination venue. Otherwise, candidates may be allowed to take make-up examination.

RELEASE OF MODULE RESULTS
The date of the release of module results is posted on the ITE Home Page before the end of each term. Students can view their module results via myITE Portal from the date of the release of module results. A Statement of Results will also be issued to the students. The Statement of Results will show the grades and credits earned in all the modules that the students have taken in that term, as well as their current and cumulative GPA.

PROGRESSION TO THE NEXT MODULE
In general, the completion of a module is sufficient for progression to the next module of a course of study with the exception of modules, which require a pass in the prerequisite modules.

REPEATING OF MODULE
Students who fail a module will be required to repeat the module in the next term. Students are not allowed to repeat a pass module to improve their grades.

APPEAL REGULATIONS
Candidates may appeal to review their module results if they have reasons to believe that the module grade awarded for a particular module should have been better. Appeals must be made on prescribed forms with payment of a deposit of $20 per module at any of the ITE Customer & Visitor Centres. If the appeal results in a change of the module grade, the deposit will be refunded.

Candidates will be informed of ITE’s decision on the appeal in writing. The decision of ITE for the appeal is final.
Upon the successful completion of a module, a student will earn a number of credits assigned to the module. Students will graduate and be awarded the full certificate after they have accumulated the required number of credits for the course of study within the specific duration. Credits required for different levels are shown in Table 7.

Table 7 – Requirements of Credits for Different Levels of Course

<table>
<thead>
<tr>
<th>Level</th>
<th>Credits Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diploma</td>
<td>133 – 180</td>
</tr>
<tr>
<td>Higher Nitec (2 years or shorter duration)</td>
<td>26 – 70</td>
</tr>
<tr>
<td>Higher Nitec (3 years)</td>
<td>96</td>
</tr>
<tr>
<td>Nitec</td>
<td>57 – 73</td>
</tr>
</tbody>
</table>

Application for Certified Statement, Statement of Results or Academic Transcript

Students may apply for a Certified Statement (no replacement of original certificate) or a copy of the Statement of Results or Academic Transcript using prescribed application form with a payment of $10 for each type of statement requested at the ITE Customer & Visitor Centres, during office hours.

Collection of Certificates and Academic Transcript

Once students have successfully completed the course, they will receive a transcript and course certificate. The transcript will show the results of all the modules they have taken during the course.

Students will be informed in the Statement of Results to collect their certificate from the Customer & Visitor Centre of their College of Study during office hours or at the College Graduation Ceremony as advised by their College. Certificates not collected within 1 year from the date of issue will be destroyed and will not be re-issued.

If students are unable to collect their certificate personally, they can authorise another person to collect the certificate on their behalf. The authorised person needs to produce his/her original NRIC / Student Pass / Work Pass for verification and bring along a letter of authorisation and photocopy of Graduate’s NRIC / Student Pass / Work Pass and Statement of Results.

Work-Study Diploma, Higher Nitec and Nitec graduates from ITE Colleges will also receive digital copy of their Certificate and Transcript in their MySkillsFuture Skills Passport.
ACADEMIC PROGRESSION

PROGRESSION OPPORTUNITIES

ITE training has become a very practical and viable alternative route to tertiary education. At every course level, ITE has created opportunities for graduates to progress to a higher level training both internally and externally. The progression chart (please refer to next page) shows the progression opportunities open to ITE graduates.

National ITE Certificate Graduates

*Nitec* graduates with good GPA may apply for progression to the first year of a relevant *Higher Nitec* course as follows:

- *Nitec* in Business & Services graduates with GPA of at least 2.8 may apply for progression to a *Higher Nitec* Business & Services course.
- *Nitec* in Engineering/Info-Comm Technology graduates with GPA of at least 2.3 may apply for progression to a *Higher Nitec* Engineering / Info-Comm Technology course.

*Nitec* in Aerospace Machining Technology, *Nitec* in Digital & Precision Engineering, *Nitec* in Laser & Tooling Technology, *Nitec* in Machine Technology, *Nitec* in Medical Manufacturing Technology and *Nitec* in Precision Engineering graduates with GPA of at least 2.8 may apply for progression to the *Higher Nitec* in Precision Engineering course.

*Nitec* in Pastry & Baking graduates with GPA of at least 2.8 may apply for progression to the *Higher Nitec* in Pastry & Baking course.

*Nitec* in Asian Culinary Arts, *Nitec* in Culinary Skills (Western) and *Nitec* in Western Culinary Arts graduates with GPA of at least 2.8 may apply for progression to the *Higher Nitec* in Culinary Arts course.


*Nitec* in Nursing graduates with GPA of at least 2.3 may apply for progression to the *Higher Nitec* in Paramedic & Emergency Care course.

*Nitec* graduates with GPA of at least 3.0 may apply for progression to the second year of a *Higher Nitec* course relevant to their course of study.

*Nitec* graduates with a GPA of at least 3.0 can also apply for admission to the Technical Diploma courses (please refer to page 15).

*Nitec* graduates with relevant GPA may also apply for admission to a related diploma course at the polytechnics.

*Nitec* graduates with a GPA of at least 2.0 may also apply for admission to relevant Work-Study Diploma courses (please refer to page 313).

Higher National ITE Certificate Graduates

*Higher Nitec* graduates with a relevant GPA can apply for admission to the first year of a related diploma course at the polytechnics. For some diploma courses in the Engineering / IT field, *Higher Nitec* graduates with a GPA of at least 3.5 may be admitted directly to the second year of training.

*Higher Nitec* graduates with a relevant GPA can also apply for admission to the Technical Diploma courses (please refer to page 15).

*Higher Nitec* graduates may also apply for admission to relevant Work-Study Diploma courses (please refer to page 313).

EMPLOYMENT OPPORTUNITIES

ITE graduates can look forward to obtaining good jobs after graduation. Recent surveys conducted by ITE show that ITE graduates continue to be in good demand in the workplace. Generally, ITE graduates are able to secure their first permanent full-time jobs within 6 months of completing their courses.
ITE graduates who excel in their course of study may apply for progression* to a higher level.

* Progression is based on merit.

**ACADEMIC INFORMATION**

**PROGRESSION CHART**

GCE 'O' Level : Ordinary Level
GCE 'N(A)' Level : Normal (Academic) Level
GCE 'N(T)' Level : Normal (Technical) Level
Tables 8-11 show the academic calendars for ITE Colleges in the Academic Year (AY) 2022/2023.

### Table 8 – January Intake (Excluding 3-Year Higher Nitec Courses)

<table>
<thead>
<tr>
<th></th>
<th>Dates</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training</td>
<td>Mon 10 Jan to Fri 18 Mar 2022</td>
<td>10 weeks</td>
</tr>
<tr>
<td>Vacation</td>
<td>Sat 19 Mar to Sun 3 Apr 2022</td>
<td>2 weeks</td>
</tr>
<tr>
<td>Training</td>
<td>Mon 4 Apr to Fri 27 May 2022</td>
<td>8 weeks</td>
</tr>
<tr>
<td>Study/Exam</td>
<td>Mon 30 May to Fri 10 Jun 2022</td>
<td>2 weeks</td>
</tr>
<tr>
<td>Vacation</td>
<td>Sat 11 Jun to Sun 10 Jul 2022</td>
<td>4 weeks</td>
</tr>
<tr>
<td>Training</td>
<td>Mon 11 Jul to Fri 16 Sep 2022</td>
<td>10 weeks</td>
</tr>
<tr>
<td>Vacation</td>
<td>Sat 17 Sep to Sun 2 Oct 2022</td>
<td>2 weeks</td>
</tr>
<tr>
<td>Training</td>
<td>Mon 3 Oct to Fri 25 Nov 2022</td>
<td>8 weeks</td>
</tr>
<tr>
<td>Study/Exam</td>
<td>Mon 28 Nov to Fri 9 Dec 2022</td>
<td>2 weeks</td>
</tr>
<tr>
<td>Vacation</td>
<td>Sat 10 Dec 2022 to Sun 8 Jan 2023</td>
<td>4 weeks</td>
</tr>
</tbody>
</table>

### Table 9 – January Intake (for 3-Year Higher Nitec Courses^)

<table>
<thead>
<tr>
<th></th>
<th>Dates</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training</td>
<td>Mon 10 Jan to Fri 18 Mar 2022</td>
<td>10 weeks</td>
</tr>
<tr>
<td>Vacation</td>
<td>Sat 19 Mar to Sun 3 Apr 2022</td>
<td>2 weeks</td>
</tr>
<tr>
<td>Training</td>
<td>Mon 4 Apr to Fri 3 Jun 2022</td>
<td>9 weeks</td>
</tr>
<tr>
<td>Study/Exam</td>
<td>Mon 6 Jun to Fri 10 Jun 2022</td>
<td>1 week</td>
</tr>
<tr>
<td>Vacation</td>
<td>Sat 11 Jun to Sun 10 Jul 2022</td>
<td>4 weeks</td>
</tr>
<tr>
<td>Training</td>
<td>Mon 11 Jul to Fri 9 Sep 2022</td>
<td>9 weeks</td>
</tr>
<tr>
<td>Study/Exam</td>
<td>Mon 12 Sep to Fri 16 Sep 2022</td>
<td>1 week</td>
</tr>
<tr>
<td>Vacation</td>
<td>Sat 17 Sep to Sun 2 Oct 2022</td>
<td>2 weeks</td>
</tr>
<tr>
<td>Training</td>
<td>Mon 3 Oct to Fri 2 Dec 2022</td>
<td>9 weeks</td>
</tr>
<tr>
<td>Study/Exam</td>
<td>Mon 5 Dec to Fri 9 Dec 2022</td>
<td>1 week</td>
</tr>
<tr>
<td>Vacation</td>
<td>Sat 10 Dec 2022 to Sun 8 Jan 2023</td>
<td>4 weeks</td>
</tr>
</tbody>
</table>

^ Applicable only for these 3-year Higher Nitec courses for Jan 2022 intake: Accounting, Business Information Systems, Cyber & Network Security, Electronics Engineering, IT Applications Development, IT Systems & Networks, Security System Integration, and Sport Management
### Table 10 – April Intake (Excluding Selected 2-Year Higher Nitec Courses)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Start Date</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training</td>
<td>Mon 4 Apr to Fri 10 Jun 2022</td>
<td>10 weeks</td>
</tr>
<tr>
<td>Vacation</td>
<td>Sat 11 Jun to Sun 10 Jul 2022</td>
<td>4 weeks</td>
</tr>
<tr>
<td>Training</td>
<td>Mon 11 Jul to Fri 2 Sep 2022</td>
<td>8 weeks</td>
</tr>
<tr>
<td>Study/Exam</td>
<td>Mon 5 Sep to Fri 16 Sep 2022</td>
<td>2 weeks</td>
</tr>
<tr>
<td>Vacation</td>
<td>Sat 17 Sep to Sun 2 Oct 2022</td>
<td>2 weeks</td>
</tr>
<tr>
<td>Training</td>
<td>Mon 3 Oct to Fri 9 Dec 2022</td>
<td>10 weeks</td>
</tr>
<tr>
<td>Vacation</td>
<td>Sat 10 Dec 2022 to Sun 8 Jan 2023</td>
<td>4 weeks</td>
</tr>
<tr>
<td>Training</td>
<td>Mon 9 Jan to Fri 3 Mar 2023</td>
<td>8 weeks</td>
</tr>
<tr>
<td>Study/Exam</td>
<td>Mon 6 Mar to Fri 17 Mar 2023</td>
<td>2 weeks</td>
</tr>
<tr>
<td>Vacation</td>
<td>Sat 18 Mar to Sun 2 Apr 2023</td>
<td>2 weeks</td>
</tr>
</tbody>
</table>

### Table 11 – April Intake (for Selected 2-Year Higher Nitec Courses*)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Start Date</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training</td>
<td>Mon 4 Apr to Fri 10 Jun 2022</td>
<td>10 weeks</td>
</tr>
<tr>
<td>Vacation</td>
<td>Sat 11 Jun to Sun 10 Jul 2022</td>
<td>4 weeks</td>
</tr>
<tr>
<td>Training</td>
<td>Mon 11 Jul to Fri 9 Sep 2022</td>
<td>9 weeks</td>
</tr>
<tr>
<td>Study/Exam</td>
<td>Mon 12 Sep to Fri 16 Sep 2022</td>
<td>1 week</td>
</tr>
<tr>
<td>Vacation</td>
<td>Sat 17 Sep to Sun 2 Oct 2022</td>
<td>2 weeks</td>
</tr>
<tr>
<td>Training</td>
<td>Mon 3 Oct to Fri 2 Dec 2022</td>
<td>9 weeks</td>
</tr>
<tr>
<td>Study/Exam</td>
<td>Mon 5 Dec to Fri 9 Dec 2022</td>
<td>1 week</td>
</tr>
<tr>
<td>Vacation</td>
<td>Sat 10 Dec 2022 to Sun 8 Jan 2023</td>
<td>4 weeks</td>
</tr>
<tr>
<td>Training</td>
<td>Mon 9 Jan to Fri 10 Mar 2023</td>
<td>9 weeks</td>
</tr>
<tr>
<td>Study/Exam</td>
<td>Mon 13 Mar to Fri 17 Mar 2023</td>
<td>1 week</td>
</tr>
<tr>
<td>Vacation</td>
<td>Sat 18 Mar to Sun 2 Apr 2023</td>
<td>2 weeks</td>
</tr>
</tbody>
</table>

FEES & FINANCIAL SERVICES

• FEES
• AWARDS & SCHOLARSHIPS
• FINANCIAL ASSISTANCE SCHEMES
FEES & FINANCIAL SERVICES

FEES

PAYMENT OF FEES

Students are required to pay their term fees for all terms in order to remain in their course of study. Fees are due upon term commencement. No invoice will be sent. Students can access myITE Portal at https://for.edu.sg/ite-student-portal with the User ID and Password issued by ITE during application to view the fees payable. Fees are charged based on 6-month term. Students may pay the fees through the following modes:

Post-Secondary Education Account (PSEA)

All Singapore Citizen students with MOE Post-Secondary Education Account (PSEA) are required to use their PSEA for payment of fees. They can do so through the online PSEA Standing Order (SO) Form. Students below 21 years of age will need their parent to submit the online PSEA SO Form on their behalf using his/her Singpass. Alternatively, they can submit the hardcopy SO Form to use their siblings’ PSEA for fee payment if their siblings have sufficient PSEA balances. Students may call the PSEA enquiry line at 6260 0777 to check whether they have PSEA and their PSEA balances.

Online Fee Payment

Singapore Citizen students without PSEA, Singapore Permanent Resident students and International students may make online payment (by eNETS or Credit/Debit Card) for their first term fees.

Payment at ITE Customer & Visitor Centre

Singapore Citizen students without PSEA or their PSEA balance is insufficient for all terms in the course of study, Singapore Permanent Resident students and International students may also pay their first term fees via NETs/Credit Card at Customer & Visitor Centre of the ITE Colleges. Concurrently, these students are required to submit Application Form for Interbank GIRO for payment of fees from the subsequent term onwards.

REFUND OF FEES

Students who wish to withdraw from the courses they have matriculated for may apply for a refund. Students should submit an application for refund to the College where they have matriculated for.

The schedule of provision for refund is:

<table>
<thead>
<tr>
<th>Receipt of Application for Withdrawal</th>
<th>Amount of Refund*</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 weeks or more before the start of term / course</td>
<td>Full Amount</td>
</tr>
<tr>
<td>Less than 2 weeks before the start of term / course</td>
<td>50%</td>
</tr>
<tr>
<td>After the start of term / course</td>
<td>None</td>
</tr>
</tbody>
</table>

* Refund is not an automatic process. Applicant must apply for refund, before ITE processes the request and it is subject to approval.

INSURANCE

All full-time students are insured under the Group Personal Accident Insurance Scheme.

All full-time students in the Nitec in Nursing and Higher Nitec in Paramedic & Emergency Care courses are required to participate in the GHSI(Healthcare) scheme. The GHSI(Healthcare) provides coverage for hospitalisation expenses plus an outpatient rider for clinical attachments.

Full-time International Students (excluding students of Nitec in Nursing and Higher Nitec in Paramedic & Emergency Care courses) are required to participate in the Group Hospitalisation and Surgical Insurance [GHSI(IS)] scheme.

GHSI(Healthcare) and GHSI(IS) rates payable are subject to yearly review and are advised separately.
The breakdown of the fees payable by Technical Engineer Diploma, Technical Diploma, Higher Nitec and Nitec levels are listed in Table 12.

**Table 12: Summary of Fees for Full-Time Courses (to be updated)**
The fees below are based on Academic Year 2021:

<table>
<thead>
<tr>
<th>Table 12a – Course Fees for Full-Time Technical Engineer Diploma and Technical Diploma Courses (Admission to Singapore Citizens only)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tuition Fee (per term)</strong></td>
</tr>
<tr>
<td>Below 40 years old</td>
</tr>
<tr>
<td>Technical Engineer Diploma in Automotive Engineering and Technical Engineer Diploma in Machine Technology</td>
</tr>
<tr>
<td>Technical Diploma in Culinary Arts</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 12b – Course Fees for Full-Time 2-Year Higher Nitec Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Category</strong></td>
</tr>
<tr>
<td>Singapore Citizen</td>
</tr>
<tr>
<td>Singapore Permanent Resident</td>
</tr>
<tr>
<td>International Student</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 12c – Course Fees for Full-Time 3-Year Higher Nitec and Nitec Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Category</strong></td>
</tr>
<tr>
<td>Singapore Citizen</td>
</tr>
<tr>
<td>Singapore Permanent Resident</td>
</tr>
<tr>
<td>International Student</td>
</tr>
</tbody>
</table>

For 3-year Higher Nitec courses, students will pay Nitec fee rate for the first 2 years of training. The fee rate for Year 3 will follow the same fee rate as April intake for Higher Nitec in that year, which will be advised later.

**Note:**
1) The above are based on Academic Year 2021 fees.
2) Under the cohort-based fee structure, a student's tuition fees will remain unchanged for the entire duration of the course (except for student in Year 3 of the 3-year Higher Nitec course). With this new fee structure, students will have greater certainty regarding tuition fees which will help them to better plan for the financing of their studies.
3) Fees are charged based on 6-month term.
4) The fee rates are inclusive of GST or after GST subsidy.
   Tuition Grant is provided to all eligible full-time Technical Diploma course students by the Government of Singapore through the Ministry of Education (MOE), to subsidise their tertiary education. Technical Diploma students who are eligible for and accept the Tuition Grant will pay subsidised Tuition Fee. Those who are not eligible or do not accept the Tuition Grant, will have to pay the non-subsidised Tuition Fee, inclusive of 7% GST. For more information about SkillsFuture Mid-Career Enhanced Subsidy, programmes and initiative, please refer to [https://www.skillsfuture.sg/enhancedsubsidy](https://www.skillsfuture.sg/enhancedsubsidy).
5) Fees are charged based on Citizenship at the point of term commencement. Students who have officially informed ITE of their Citizenship change to Singapore Citizen or Singapore Permanent Resident before the term commencement will have their fees adjusted to the Singapore Citizen / Singapore Permanent Resident rate for that term. However, for students who inform ITE officially of their Citizenship change to Singapore Citizen or Singapore Permanent Resident after the term commencement, their fees will be adjusted to the Singapore Citizen / Singapore Permanent Resident rate only with effect from the next term.
AWARDS & SCHOLARSHIPS

ITE offers attractive scholarships and awards for students who have excelled academically, achieved outstanding performance in their co-curricular activities (CCAs) and demonstrated strong leadership potential or artistic and sporting talent.

Certificate of Merit
Certificate of Merit (COM) is generally awarded to the top 5% of the graduates from a course. Graduates must have passed all core, specialisation and life skills modules at the first attempt within normal course duration and have achieved outstanding performance in their course of study, with a cumulative GPA of 3.5 or above, at the point of graduation.

Course Medal
The Course Medals are awarded to the outstanding COM holders in each course. The number of Course Medals awarded for each course is based on the number of graduates of the course, subject to a maximum of 3 medals.

Graduates will be awarded Gold, Silver or Bronze Course Medal based on their overall performance in their course of study, CCA achievements and other contributions.

Top Graduate Awards
Gold Course Medallists with outstanding performance and have contributed to the well-being of the Colleges through active participation in college and social activities will be eligible for Top Graduate Awards which will include:

- Lee Kuan Yew Gold Medal
- Tay Eng Soon Gold Medal
- The Ngee Ann Kongsi Gold Medal

Lee Hsien Loong Award for Outstanding All-Round Achievement
Gold Course Medallists, who have done well academically and actively involved in CCA, particularly those who have made outstanding contributions to the community and demonstrated the spirit of Innovation and Enterprise, will be eligible for the Lee Hsien Loong Award for Outstanding All-round Achievement. Cash prize of $600 is awarded to the recipient of this award.

Lee Kuan Yew Model Student/Trainee Award
The Lee Kuan Yew Model Student/Trainee Award is presented to ITE full-time Higher Nitec and Nitec students and trainees who have performed consistently well in their course and have displayed outstanding conduct and attitude worthy of emulation by their peers. The award serves to inspire students and trainees to display exemplary behaviour in training and develop high moral values as well as show care and concern for others. The award comprises a cash quantum of $400, a trophy and a certificate.

Lee Kuan Yew Technology Award
The Lee Kuan Yew Technology Award is presented to ITE full-time Higher Nitec and Nitec students who have developed excellent projects that embody quality, technical innovation and creativity. The award serves to inspire students to develop a zeal for challenges, creativity and competition. A maximum of 10 awards will be presented each year. The award comprises a cash quantum of $400 and a trophy. Each member of the project team also receives a replica trophy and a certificate.

Lee Kuan Yew CCA Award
The Lee Kuan Yew CCA Award is a recognition of excellence in CCA accorded to the most deserving ITE full-time Higher Nitec and Nitec students who have distinguished themselves among the ITE CCA Medallists. The award comprises a cash quantum of $400, a trophy and a certificate.
Sultan Haji Omar Ali Saifuddien Book Prize
The Sultan Haji Omar Ali Saifuddien Book Prize provides further recognition to outstanding ITE graduates, and encourages them to work hard and excel in their studies at the polytechnics. Each Book Prize is worth $500. The awardees will be selected from among the ITE recipients of the Lee Kuan Yew Scholarship to Encourage Upgrading (LKY-STEP).

ITE Arts Excellence Award
The objective of the ITE Arts Excellence Award is to recognise quality contributions by students to the ITE arts scene and to motivate on-going students to excel in music and the arts.

ITE Sports Excellence Award
The objective of the ITE Sports Excellence Award is to encourage and motivate on-going students to excel in sports and games and to recognise outstanding contributions and achievements by students in the ITE's sports arena.

Edusave Awards for Achievement, Good Leadership and Service (EAGLES)
EAGLES is an award that gives recognition to full-time ITE students for their leadership qualities, service to community or excellence in the non-academic areas, i.e. Sports & Games, Arts & Cultural Activities, Clubs & Societies and Community Service. Up to 10% of ITE full-time Higher Nitec and Nitec students who are Singapore Citizens will be selected for the award yearly. No application for the award is required. The cash quantum of each award is $500.
Edusave Character Award (ECHA)
Edusave Character Award is given to students who demonstrate exemplary character and outstanding personal qualities through their behaviour and actions. Up to 2% of ITE full-time Higher Nitec and Nitec Singaporean students will be selected for the award yearly. Each award is valued at $500.

Edusave Skills Award (ESA)
Edusave Skills Award is given to students who demonstrate excellent professional and soft skills throughout their course of study based on their performance in curriculum components such as industry attachment, final year projects and/or achievements in competitions, conferences or other platforms which require application of course-specific skills. Up to 10% of ITE full-time Singaporean students in the graduate cohort of the year of nomination will be selected for the award yearly. Each award is valued at $500.

ITE CCA Medal
The ITE CCA Medal is awarded to ITE full-time Higher Nitec and Nitec students who have brought honour to ITE through their achievements in music and arts, sports and games or have contributed significantly to the enhancement of College life and demonstrated outstanding leadership in their chosen CCA.

Students must also be a recipient of the EAGLES award and those with an equivalent incentive award will be considered on a case-by-case basis. Each awardee will receive a Certificate and a Medal.

ITE Community Scholarship
The ITE Community Scholarship is open to Singaporean school leavers who have completed their secondary education and have registered for ITE’s full-time Higher Nitec and Nitec courses. Company-sponsored students admitted to ITE’s full-time courses are also eligible for the Scholarship. The Scholarship will be awarded to the top 10% of the following categories of new students joining ITE at each intake exercise:

- GCE ‘O’ Level students
- GCE ‘N’ Level (Academic) students
- GCE ‘N’ Level (Technical) students

The top 10% of those admitted will be awarded the Scholarship. The value of the award is $1,600 and 100% tuition fee subsidy per annum. For recipients in a 2-year course, renewal of the award in the second year of study is subject to a review of their performance and conduct during the first year of study. The Scholarship is also open to Nitec graduates admitted to the second year of Higher Nitec courses.

Successful recipients will be informed by ITE. No application is required.

Lee Kuan Yew Scholarship to Encourage Upgrading (LKY - STEP)
The objective of the LKY-STEP is to motivate ITE students to excel in their training and encourage life-long learning. The scholarship is awarded to outstanding ITE graduates pursuing full-time diploma courses at the local polytechnics and ITE. It comprises a one-off cash quantum of $3,500 plus waiver of tuition fees for the duration of the polytechnic or ITE diploma course.

Tay Eng Soon Scholarship
The objective of the Tay Eng Soon Scholarship is to motivate ITE students to excel in their training and pursue polytechnic education. The scholarship is awarded to outstanding ITE graduates pursuing full-time diploma courses at the local polytechnics and ITE. It comprises a one-off cash quantum of $3,000.
**Industry Scholarships**

ITE has a wide range of scholarship and sponsorship awards offered by external organizations and companies. More information on these awards is obtainable from the respective Colleges. Some of the scholarships offered for ITE full-time courses are given in Table 13.

<table>
<thead>
<tr>
<th>Scholarship Award</th>
<th>For Student Pursuing:</th>
<th>College</th>
<th>Value</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEA-Industry Scholarship</td>
<td>• Higher Nitec in Biotechnology&lt;br&gt;• Higher Nitec in Chemical Technology&lt;br&gt;• Higher Nitec in Electrical Engineering&lt;br&gt;• Higher Nitec in Hospitality Operations&lt;br&gt;• Higher Nitec in Mechanical Engineering&lt;br&gt;• Higher Nitec in Mechatronics Engineering&lt;br&gt;• Higher Nitec in Precision Engineering&lt;br&gt;• Higher Nitec in Robotics &amp; Smart Systems&lt;br&gt;• Nitec in Built Environment (Mechanical &amp; Electrical Services)&lt;br&gt;• Nitec in Chemical Process Technology&lt;br&gt;• Nitec in Hospitality Operations&lt;br&gt;• Nitec in Logistics Services&lt;br&gt;• Nitec in Mechanical Technology&lt;br&gt;• Nitec in Mechatronics &amp; Robotics</td>
<td>All ITE Colleges</td>
<td>$8,000 annual allowance (including course fee, other compulsory fees and other allowances) for 2 years</td>
<td>Fulfil a year’s bond in the Environmental Services (ES) industry for every year of study sponsored upon graduation or completion of National Service. &lt;br&gt;Post-graduation incentive: Scholars will receive a bonus of $5,000 one year after completing their bond with the industry firm. &lt;br&gt;For more details, please log on to <a href="https://www.nea.gov.sg/esitm-nis/for-students">https://www.nea.gov.sg/esitm-nis/for-students</a></td>
</tr>
<tr>
<td>Energy-Industry Scholarship</td>
<td>• Higher Nitec in Electrical Engineering&lt;br&gt;• Higher Nitec in Mechanical Engineering&lt;br&gt;• Nitec in Electrical Technology (Power &amp; Control)&lt;br&gt;• Nitec in Mechanical Technology</td>
<td>All ITE Colleges</td>
<td>Course fees and $600 monthly allowance plus one-time allowance of $1,000 for study-related expenses</td>
<td>2-year bond &lt;br&gt;For more details, please log on to <a href="https://www.poweringlives.gov.sg/scholarships-awards/students/eis">https://www.poweringlives.gov.sg/scholarships-awards/students/eis</a></td>
</tr>
<tr>
<td>Howe Yoon Chong (HYC) – PSA Scholarship</td>
<td>• Nitec, Higher Nitec and Technical Diploma courses</td>
<td>All ITE Colleges</td>
<td>Sponsorship of fees and annual allowance of $4,400</td>
<td>Bond free &lt;br&gt;Details on the Scholarship are available at <a href="https://www.hycpsascholarship.com">https://www.hycpsascholarship.com</a></td>
</tr>
</tbody>
</table>
Table 13 – Details of Industry Scholarship for Full-Time Courses

<table>
<thead>
<tr>
<th>Scholarship Award</th>
<th>For Student Pursuing:</th>
<th>College</th>
<th>Value</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keppel Care Foundation Scholarship &amp; Keppel Merit Award</td>
<td>• All <em>Higher Nitec</em> and <em>Nitec</em> courses in Schools of Engineering, Electronics &amp; Info-Comm Technology, Business &amp; Services</td>
<td>All ITE Colleges</td>
<td>$9,600 annually (scholarship) $3,000 per term (merit award)</td>
<td>Bond free Please refer to the respective Colleges for more details and eligibility of the scholarships and awards</td>
</tr>
<tr>
<td>NetLink Trust Scholarship</td>
<td>• <em>Higher Nitec</em> in Electrical Engineering • <em>Higher Nitec</em> in Electronics Engineering • <em>Higher Nitec</em> in Engineering with Business • <em>Higher Nitec</em> in Mechanical Engineering • <em>Higher Nitec</em> in Mechatronics Engineering</td>
<td>All ITE Colleges</td>
<td>Sponsorship of tuition fee, laptop allowance, monthly living allowance and/or study bonus. The amount sums up to $8,000 per award</td>
<td>2-year bond NetLink Trust is grooming young talent in Fibre Optic Industry For more information, please log on to: <a href="https://www.netlinktrust.com/about-us/about/careers/netlink-trust-scholarship.html">https://www.netlinktrust.com/about-us/about/careers/netlink-trust-scholarship.html</a> Alternatively, you can send an email to <a href="mailto:scholarship@netlinknbn.com">scholarship@netlinknbn.com</a></td>
</tr>
<tr>
<td>PSA Engineering Nitec / Higher Nitec Scholarship</td>
<td>• <em>Higher Nitec</em> courses in Electrical, Electronics, Mechanical or Mechatronics trade • <em>Nitec</em> courses in Automotive, Electrical, Electronics, Mechanical or Mechatronics trade</td>
<td>All ITE Colleges</td>
<td>$8,000 for 2 years</td>
<td>1-year bond</td>
</tr>
<tr>
<td>PSA Operations Higher Nitec Scholarship</td>
<td>• <em>Higher Nitec</em> in International Logistics</td>
<td>ITE College East</td>
<td>$8,000 for 2 years</td>
<td>1-year bond</td>
</tr>
<tr>
<td>Singapore Olympic Foundation - Peter Lim Sports Scholarship</td>
<td>• <em>Nitec, Higher Nitec</em> and Technical Diploma courses</td>
<td>All ITE Colleges</td>
<td>Tertiary level athletes - $1,000 annually High Performance (U18) athletes - $2,500 annually</td>
<td>Bond free For more information, please visit <a href="https://sof.sg/scholarship/">https://sof.sg/scholarship/</a></td>
</tr>
</tbody>
</table>

Note: Please refer to ITE website: [https://www.ite.edu.sg](https://www.ite.edu.sg) for the latest and full list of industry scholarships offered.
**SAF-ITE Sponsorship (Enhanced Warrant Officers Scheme) and SAF-ITE Sponsorship (Military Domain Experts Scheme)**

The Singapore Armed Forces (SAF) offers the above sponsorships for full-time studies in ITE to school leavers. More information on SIS (EWOS) in short for SAF-ITE Sponsorship (Enhanced Warrant Officers Scheme) and SIS (MDES) in short for SAF-ITE Sponsorship (Military Domain Experts Scheme) can be obtained from the SAF Career Centre on Tel 1800 6872769 (Army), Tel 1800 2780000 (Navy) or Tel 1800 2701010 (Air Force).

**Sponsorship for Nitec in Nursing Course**

Sponsorship awards are offered to selected students who have successfully enrolled in the Nitec in Nursing course. Upon the successful completion of training, recipients will join the sponsoring hospital where they will perform direct nursing care and activities to patients. More information on this sponsorship award will be available after students commence the course at the College.

**Other Awards**

There are also other awards available to students who may be in need of financial assistance. More information on these awards can be obtained at the respective ITE Colleges.
FINANCIAL ASSISTANCE SCHEMES

ITE is fully committed to helping students cope with their educational expenses through various financial schemes. These are funded, in part, by the generous donations from individual organisations and foundations.

Higher Education Community Bursary
The Higher Education Community Bursary is a financial assistance scheme available for application by Singaporean school leavers seeking admission to ITE full-time courses. To be eligible, the applicant’s gross monthly household income (GHI) must not exceed $4,000 or gross monthly household per capita income (PCI) must not exceed $1,000. The bursary quantum is given in Table 14.

<table>
<thead>
<tr>
<th>Income Eligibility Criteria</th>
<th>Bursary Quantum per Annum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Monthly Household Income (GHI) or Gross Monthly Household Per Capita Income (PCI)</td>
<td>Higher Nitec &amp; Nitec Students</td>
</tr>
<tr>
<td>$4,001 to $6,900</td>
<td>$1,001 to $1,725</td>
</tr>
<tr>
<td>$6,901 to $9,000</td>
<td>$1,726 to $2,250</td>
</tr>
</tbody>
</table>

Students may apply for the bursary at any time during an academic year.

Applicants for the bursary must be subsidised Singapore Citizen students pursuing full-time Nitec, Higher Nitec or Diploma courses and must not be in receipt of the ITE Community Scholarship or any other full scholarship. Company sponsored students and trainees are not eligible for the Higher Education Community Bursary.

To apply for the Higher Education Community Bursary, an applicant is required to submit an on-line application for financial assistance and submit the supporting income documents (e.g. latest payslips, letters from employers) to the College where he/she is studying for verification. Student can approach the Colleges should there be a change in their household income after bursary application.

Successful applicants will be informed by their Colleges. The Community Centres will notify successful applicants on the collection details for bursary cheques.

Higher Education Bursary
The Higher Education Bursary is introduced for ITE students whose gross monthly household income (GHI) does not exceed $9,000 or gross monthly household per capita income (PCI) does not exceed $2,250. The bursary quantum is given in Table 15.

<table>
<thead>
<tr>
<th>Income Eligibility Criteria</th>
<th>Bursary Quantum per Annum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Monthly Household Income (GHI) or Gross Monthly Household Per Capita Income (PCI)</td>
<td>Higher Nitec &amp; Nitec Students</td>
</tr>
<tr>
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</tr>
<tr>
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<td>$1,726 to $2,250</td>
</tr>
</tbody>
</table>

Students may apply for the bursary at any time during an academic year.

Applicants for the bursary must be subsidised Singapore Citizen students pursuing full-time Nitec, Higher Nitec or Diploma courses and must not be in receipt of the ITE Community Scholarship or any other full scholarship. (A full scholarship typically covers tuition fees payable and a monthly or annual living allowance.)
To apply for the bursary, an applicant is required to submit an on-line application for financial assistance and submit the supporting income documents (e.g. latest payslips, letters from employers) to the College where he/she is studying for verification. Students can approach the Colleges should there be a change in their household income after bursary application or award during the academic year.

Successful applicants will be informed by their Colleges.

**Edusave Merit Bursary**

The Edusave Merit Bursary is a scheme that gives recognition to ITE full-time students for their academic performance in ITE. Singaporean students whose family’s gross monthly household income does not exceed $6,900 or per capita income does not exceed $1,725 can qualify for this award if they are ranked within the top 25% of their course based on examination results for the training year. Each award is valued at $500. All eligible students will be informed by the respective Community Centres on the application procedures.

**ITE Monthly Financial Assistance Scheme (MFAS) and Special Student Assistance Scheme (SSAS)**

The MFAS scheme aims to provide monthly allowance to needy full-time Singaporean students who face special hardship circumstances and require regular financial assistance to help them with daily expenses. The quantum of award is $150 per month. The number of months of award shall be decided by the College on a case-by-case basis.

The ITE SSAS scheme is a one-off financial assistance to tide students over short-term financial difficulties. It also serves as a form of transitional financial assistance to help students tide over sudden financial crisis in the family, so that they can continue with their studies. The quantum of award shall be decided by the College on a case-by-case basis (typically $200), subject to a cap of $600 per year.

To be eligible for the MFAS and SSAS, the applicant’s gross monthly household income (GHI) must not exceed $2,750 or gross monthly household per capita income (PCI) must not exceed $690. To apply for the financial assistance, an applicant is required to submit an on-line application for financial assistance and submit the supporting income documents (e.g. latest payslips, letters from employers) to the College where he/she is studying for verification.

Successful applicants will be informed by their Colleges.
STUDENT DEVELOPMENT & SERVICES

- STUDENT DEVELOPMENT
- STUDENT SERVICES
- REGULATIONS
Life in ITE promises to be an enriching and fulfilling experience. In addition to technical training, the vibrant ITE Colleges are also filled with many exciting activities to equip students with life skills such as leadership and organising skills to help them prepare for their careers.

**STUDENT DEVELOPMENT**

ITE's training philosophy is to provide students with total training and development. This includes developing a healthy body and mind. Physical Education (PE) forms part of the ITE curricula and is provided under the Sports and Wellness module. All full-time students, except those exempted on medical or other grounds, are required to attend weekly PE sessions. PE sessions are conducted by trained physical education instructors.

**Staying Competitive**

In this fast-paced information age, knowledge is a very important asset. The more knowledge or information students have, the more adaptable they are to change. ITE's total training concept therefore, includes equipping students with skills that will not only give them a head start in the workplace but also help them to stay competitive.

For example, besides attending classes for the core modules (Business, Engineering or Technical) in the course, students are also required to attend classes on life skills. Life skills in broad terms are foundation skills and personal qualities that an individual can transfer from one job to another, and to manage and adapt to changes in technology and work environments. The Life Skills modules are delivered through the Personal and Professional Development components.

**Broadening Students’ Minds**

The contents of some ITE courses are quite specialised. To ensure that students are given a wider outlook or perspective of industry, ITE has created opportunities for students to be exposed to knowledge in areas outside the course they are pursuing.

For example, students will be required to visit at least one company each training year. The company they visit will be from an industry that is related to their course of study. These visits are designed to give students a first-hand experience of the type of working environment they could be in. It will also give them the opportunity to ask questions. In fact, some Colleges have set up their own job attachment schemes for their students so that they would have a better feel of the working world.

**Developing Leadership Potential**

There is no lack of opportunity for students to develop their leadership potential. But, what does developing one’s leadership potential mean? Essentially, it means students will be trained to be responsible for their actions and decisions. This is achieved by teaching them the skills involved in the decision-making process. At ITE, the development of students’ leadership potential can be done through their involvement in Co-Curricular Activities (CCA) and, more importantly, through the integrated approach used in teaching.

**CCA Recognition Scheme**

Under the CCA Recognition Scheme, students can make use of their CCA grades attained through active participation in CCA to convert them to GPA points, when applying for progression to higher level courses in ITE as well as to the polytechnics. These bonus points will give students who are active in CCA an edge in gaining admission to courses of their choice.

The CCA approved under the scheme include sports and games and non-sports CCA such as Student Council and Bridge Leaders.

ITE Colleges are well equipped with facilities for a wide range of CCA. ITE Colleges have facilities for basketball, volleyball, badminton, sepak takraw, soccer and tennis as well as rooms for music and the arts and other clubs and societies. Students can participate in the many activities organised by the CCA groups. Most CCA groups are managed by students with the help of lecturer-advisors.
Sports
Inter-College competitions are organised by the ITE Sports Council. At present, Inter-College competitions in badminton, table-tennis, cross-country, basketball, sepak takraw, soccer, track and field, volleyball and ten-pin bowling are organised. In addition, good athletes are selected to represent the Combined ITE Teams to compete in the Institute-Varsity-Polytechnic Games. The list of games at ITE Colleges includes:

- Archery
- Badminton
- Basketball
- Billiard
- Bowling
- Chess
- Cycling
- Dragon Boat
- Fencing
- Floorball
- Frisbee
- Handball
- Netball
- Rock Climbing
- Rugby
- Sailing
- Sepak Takraw
- Skating
- Soccer
- Swimming
- Table-Tennis
- Tchoukball
- Tennis
- Volleyball

Music and the Arts
The Centre for Music and the Arts (CeMTA) is established to help develop ITE students artistically and to further nurture their potential in the performing arts such as music, dance and drama. The aim of the Centre is to create a culturally more vibrant College environment to provide students with more opportunities to pursue their interests and showcase their artistic talents.

Community Service
Events to develop students’ sense of social responsibility are organised regularly. These events are aimed at broadening students’ experience and increasing their awareness of the needs and social issues of others in the community. Most importantly, these events are organised so that students will learn to interact with the elderly meaningfully through regular visits and assist whenever possible. Events organised include planning activities to help the elderly to retain their mental and physical faculties, visits to charitable homes, assisting in cleaning some of the elderly homes and participating in college blood donation drives.

All full-time students are encouraged to put in at least 15 hours of community service work in their studies in ITE. However, the nominated executive committee of the club is given opportunities to organise and plan the activities. They are being trained in the process to develop their potential to the fullest so that they can continue to serve the community even after graduating from ITE.
STUDENT SERVICES

The objective of the ITE Student Realwork Scheme is to provide full-time ITE students with the opportunity to acquire work experience outside training hours when there is a need for such work to be done in ITE establishments. With the work exposure and experience, students become better prepared for work when they graduate. The availability of part-time work on ITE premises provides convenience to students, and enables them to also participate in CCA, and to make use of the support facilities for their studies before or after their Realwork commitment.

Career Services Centre

The Career Services Centre (CSC) set up at each ITE College provides a range of Education and Career Guidance (ECG) services to ITE students to help them plan and make well-informed decisions about their education progression, training and future career choices.

The services include:

• Counselling services to help them assess their strengths, interests, personality, aspirations, and plan their education and career pathways
• ECG workshops / talks to help them further explore their strengths, weaknesses, aspirations and career pathways
• Advice on job seeking and application skills (e.g. resume writing, job search techniques and interview skills)

REGULATIONS

All students are required to comply with ITE Student Code of Conduct.

Behaviour

Students are expected to behave appropriately at all times that is, showing good conduct in training and respect for lecturers and staff of the College. Smoking is prohibited within the College ground.

ITE Student Uniform

All full-time students must be properly attired in prescribed uniform or attire while in College during term time and at all ITE-organised activities, events or functions. This requirement is a conscious decision taken by ITE to give students a sense of belonging, instil discipline and foster cohesiveness. No modification to the prescribed uniform or attire is allowed.

Attendance

Students are required to attend and be punctual for all scheduled lessons, workshops or laboratory sessions and official College and ITE functions.

Students who are unable to attend their scheduled classes or sit for any in-course assessment tests because of medical or other justifiable reasons must be supported by medical certificate or other documents. Students who need to leave the College during training hours must obtain prior approval from their class advisors.

ITE Student Concession Card

All full-time ITE students and students under traineeship schemes will be issued with an ITE Student Concession Card which entitles them to concessionary travel on public transport. No application is required. All new students shall receive their Student Concession Card from ITE 4 to 6 weeks after the matriculation process.

It is the responsibility of each student to observe all rules governing the use of the ITE Student Concession Card. Misuse of the ITE Student Concession Card will lead to an immediate withdrawal of the student’s concessionary travel.

Hygiene & Health

Students must maintain a high standard of hygiene and cleanliness. During workshop sessions, all students must comply with industrial safety rules as stipulated by the College.

College Property

Students must exercise care when using College properties and facilities, and maintain a high standard of cleanliness on the College premises. It is the responsibility of each student to report to his/her class advisor of any damage or loss of College property. Any student found damaging College property and/or equipment will be liable for disciplinary action and to pay for the damage.
TECHNICAL ENGINEER DIPLOMA IN AUTOMOTIVE ENGINEERING

COURSE SYNOPSIS

This course provides students with the skills and knowledge in analysing and resolving complex technical problems associated with motor vehicles, managing workshop maintenance and repair services, and rendering technical advice and providing workshop services to motorists.

Acquire knowledge and gain skills which are highly relevant to the industry:

- Workshop Management
- Automotive Test and Diagnostics
- Business and Project Management
- Production Technology
- Quality Management
- Computer-Aided Design

Gain valuable first-hand experience:

- Opportunity for real-work exposure through industry attachment

JOB OPPORTUNITIES

Technical Engineer Diploma in Automotive Engineering graduates are employed by companies in the automotive industry. Some of the job titles held by graduates include Service Advisor, Automotive Technical Executive and Automotive Workshop Manager.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
<td>117</td>
</tr>
<tr>
<td>Elective Modules</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
</tr>
</tbody>
</table>

Note: To obtain the Technical Engineer Diploma in Automotive Engineering certification, you need to fulfil all the institutional requirements stipulated for the course. The offer of electives is subject to the training schedule of ITE College West. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.

COURSE STRUCTURE

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CORE MODULES</td>
<td></td>
</tr>
<tr>
<td>Business Management and Communication I</td>
<td>10</td>
</tr>
<tr>
<td>Technical Mathematics</td>
<td>8</td>
</tr>
<tr>
<td>Information Technology</td>
<td>4</td>
</tr>
<tr>
<td>Technical Physics I</td>
<td>4</td>
</tr>
<tr>
<td>Quality Management</td>
<td>4</td>
</tr>
<tr>
<td>Design</td>
<td>6</td>
</tr>
<tr>
<td>Manufacturing Technology I</td>
<td>4</td>
</tr>
<tr>
<td>Automation Technology</td>
<td>4</td>
</tr>
<tr>
<td>Production and Operations Management I</td>
<td>4</td>
</tr>
<tr>
<td>Automotive Technology I</td>
<td>4</td>
</tr>
<tr>
<td>Automotive Electrics/Electronics I</td>
<td>4</td>
</tr>
<tr>
<td>Vehicle Management Systems I</td>
<td>4</td>
</tr>
<tr>
<td>Business Management and Communication II</td>
<td>12</td>
</tr>
<tr>
<td>Technical Physics II</td>
<td>6</td>
</tr>
<tr>
<td>Manufacturing Technology II</td>
<td>4</td>
</tr>
<tr>
<td>Production and Operations Management II</td>
<td>6</td>
</tr>
<tr>
<td>Automotive Technology II</td>
<td>6</td>
</tr>
<tr>
<td>Automotive Electrics/Electronics II</td>
<td>4</td>
</tr>
<tr>
<td>Vehicle Management Systems II</td>
<td>6</td>
</tr>
<tr>
<td>Final Year Project</td>
<td>13</td>
</tr>
<tr>
<td>ELECTIVE MODULES</td>
<td></td>
</tr>
<tr>
<td>Training Company</td>
<td>8</td>
</tr>
<tr>
<td>Automotive Assessing</td>
<td>4</td>
</tr>
<tr>
<td>Pedagogy</td>
<td>4</td>
</tr>
<tr>
<td>Conversational German</td>
<td>4</td>
</tr>
<tr>
<td>Lean Manufacturing</td>
<td>4</td>
</tr>
<tr>
<td>On-the-Job Training</td>
<td>4</td>
</tr>
</tbody>
</table>

Credits provided for each module are subject to change year to year. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
**MODULE OBJECTIVES**

**Core Modules**

**Business Management and Communication I**
On completion of the module, students should be able to Create and analyse the requirements and contents of an annual financial statement. The students have the ability to apply full or marginal costing on a case-by-case basis, and can derive production and sales decisions from this information. They can determine capital requirements, differentiate between types of finance and their alternatives, and both execute and evaluate case-related financing.

The students are able to act responsibly and empathetically, and to develop an understanding of the motivation and communication processes in professional situations.

**Technical Mathematics**
On completion of the module, students should be able to model physical, electrical engineering, information technology, mechanical and economic problems mathematically. They can apply the techniques of problem solving to present results and to interpret and cope confidently with application-related tasks.

**Information Technology**
On completion of the module, students should be able to explain the structure of a computer system and describe the functions of the operating system. They are able to use industry-standard software for modelling technical problems.

**Technical Physics I**
On completion of the module, students should be able to analyse and calculate the occupation-specific tasks in the subject area of vehicle-specific applications, properties of mechanics of liquids and gases, and apply the laws of statics. They can recognise, understand and evaluate the physical relationships.

**Quality Management**
On completion of the module, students should be able to comprehend the structure and operation of quality management systems. They are capable of capturing, compressing and evaluating measurement values so that optimisation approaches can be developed. They are able to carry out and evaluate capability studies. The students should be able to monitor and evaluate processes using control charts, and have the competence to use the appropriate tools for process optimization.

**Design**
On completion of the module, students should be able to design tasks and to solve them on their own. They are able to apply the acquired problem-solving strategies and the principles of methodological constructing in a targeted manner. The principles of different design types such as supplementary, modification, variant and new designs are developed in various practical examples. They can control a 3D CAD system for the implementation of these tasks, and are able to utilise the resources effectively.

The students are, in addition to creating simple sketches, skilled in dealing with 3D CAD programme, and can create 3D models and 3D assemblies.

They are capable of using standard part databases and data sets of purchased parts and creating design variants by parameter controlled components and assemblies.

The students are able to select appropriate machine elements based on the particular case of application, and to dimension the machine elements in relation to their application. The students are proficient in the use of vendor-specific information and calculation programmes. Acquired knowledge of the technical physics and technical mathematics can be applied.

**Manufacturing Technology I**
On completion of the module, students should be able to analyse production sequences by reference to the corresponding manufacturing method, in accordance with the design aspects, the economic aspects and with respect to the achievable production quality and schedule.

They are confident in the evaluation and selection of competing manufacturing processes for production planning.
Automation Technology
This module provides students with the principles of electrical engineering and electronics - covering layout and building of basic electric circuit, analysing test circuits, and explaining the functionality and use of electronic devices. It also provides students with the application knowledge of automation fundamentals, with topics including description of open control loops and closed-loops, components of a control system, and hard-wired programmed controls. In general, this module aims to equip students with the essential knowledge on organization of production processes. Topics include modern business strategies and management tools, components of a computer-aided production, working process and time studies such as workplace design, observation and time recording, and arranging workplace evaluation.

Production and Operations Management I
On completion of the module, students should be able to classify a manufacturing company. They have the expertise to use the planning system as a scheme for the development of alternative solutions. The students can analyse, design and optimise work systems.

Automotive Technology I
On completion of the module, students should be able to analyse overall systems, system components and sub-components of a vehicle.

Automotive Electrics/Electronics I
On completion of the module, students should be able to establish the processes and interaction of individual components and systems on the basis of electrical engineering.

By selecting and applying appropriate measurement technology, the students are able to provide quantitative information.

Vehicle Management Systems I
On completion of the module, students should be able to analyse processes and relationships in the mechatronic systems of the motor vehicle and to record their measurements. They can apply physical and mathematical laws to the behaviour of systems for energy conversion of vehicle propulsion, vehicle safety and other systems.

Business Management and Communication II
On completion of the module, students should be capable of formulating marketing goals, and have at their disposal the know-how and the abilities to assign marketing instruments in the Marketing-Mix. They are in a position to describe the completion and fulfilment of contracts and to present the legal consequences of contractual anomalies on the basis of case studies.

They are able to judge the legal consequences of the actions. The students are capable of presenting the essential stipulations of individual and collective employment law, and to apply this on a case-by-case basis. Furthermore, they have a command of payroll accounting.

The students are capable of relating regional and current economic-political topics.

They are able to analyse their work tasks, to evaluate the findings reflectively and to note them in writing and to present appropriately.

Technical Physics II
On completion of the module, students should be able to analyse and calculate the occupation-specific tasks in the subject area of laws of strengths of materials, laws of kinematics and dynamics and distinguish work power and energy. They recognise, understand and evaluate the physical relationships.

Manufacturing Technology II
On completion of the module, students should be able to analyse production sequences by reference to the corresponding manufacturing method, in accordance with the design aspects, the economic aspects and with respect to the achievable production quality and schedule.

They are confident in the evaluation and selection of competing manufacturing processes for production planning.

They are capable of optimising the manufacturing process with the associated resources, taking into account ecological and economic aspects.

Production and Operations Management II
On completion of the module, students should be able to describe basic mechanisms involved in production planning and control. They are able to plan the manufacturing process for selected manufacturing tasks.

The students have the skills to select and use methods to optimise production.
They are able to work on projects according to the methodology of project management.

**Automotive Technology II**
On completion of the module, students should be able to select and justify the meaningful use of individual systems.

**Automotive Electrics/Electronics II**
On completion of the module, students should be able to establish the processes and interaction of individual components and systems on the basis of electrical engineering.

By selecting and applying appropriate measurement technology, the students are able to provide quantitative information.

**Vehicle Management Systems II**
On completion of the module, students should be able to make the selection of different systems on the basis of those procedures. They have the knowledge to compare subsystems.

**Final Year Project**
On completion of the module, students should be able to plan, implement, document and present projects independently, and in a self-organising manner.

They are able to draw up a project plan, including time management and milestones, procurement materials the necessary time to organise and, where appropriate, create the necessary organisational and technical interfaces in the course of operations. The students have the ability to seek professional help in a timely manner, and to solve problems in group work or in contact with specialists. They have the necessary methods at their disposal to present and document their work to the desired target audience in an understandable and professional manner.

**Elective Modules**

**Training Company**
On completion of the module, students should be able to apply the skills and knowledge in carrying out a company project in the 2nd year of training at the Company or in College.

**Automotive Assessing**
On completion of the module, students should be able to apply the applications of the basic principles of insurance, general principles of automotive assessing and vehicle theft/attempted theft claims. It also provides students with the knowledge and skills to identify repair methods for plastics on vehicles, defects for refinishing on vehicles, and perform costing, estimating and motor insurance administration and claims.

**Pedagogy**
On completion of the module, students should be able to apply the skills and knowledge to conduct lessons and coaching sessions, plan training and assessment schedule, develop an assessment checklist, and assess the performance of trainees.

**Conversational German**
On completion of the module, students should be able to apply the knowledge and skills to converse in German by covering German phonetics and phonology, grammatical rules, cultural appreciation, and daily phrases.

**Lean Manufacturing**
On completion of the module, students should be able to apply the applications of various quality assurance systems such as Kanban, Kaizen, Total Quality Management, Six Sigma and others in managing and controlling quality in manufacturing.

**On-the-Job Training**
On completion of the module, students should be able to deepen their skills and knowledge acquired in ITE, and to develop their competencies in other specialised areas that may be unique to their attachment companies.
TECHNICAL ENGINEER DIPLOMA IN MACHINE TECHNOLOGY

COURSE SYNOPSIS

This course provides students with the skills and knowledge in the area of machine / equipment design and building, including making, assembly, testing and commissioning.

Acquire knowledge and skills gained which are highly relevant to the industry:

- Modern precision technology addressing higher precision
- Advanced automation for manufacturing industry
- Business and production quality management
- Digital application for managing production
- Business communication techniques and business economics
- Engineering IT and design

JOB OPPORTUNITIES

Technical Engineer Diploma in Machine Technology graduates are employed by companies in the high-growth machinery and systems industry. Some of the job titles held by graduates include Assistant Engineer and Supervisor.

There are excellent opportunities for career development and advancements to supervisory positions and beyond.

CERTIFICATION

Credits required for certification:

| Core Modules | : 123 |
| Elective Modules | : 12 |
| **Total** | : 135 |

Note: To obtain the Technical Engineer Diploma in Machine Technology certification, you need to fulfil all the institutional requirements stipulated for the course. The offer of electives is subject to the training schedule of ITE College Central. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Technical Mathematics
On completion of the module, students should be able to solve physical, electrical engineering, information technology, mechanical and economic problems mathematically through application-related teaching. They should also be able to master the techniques of problems solving, present results, interpret and cope confidently with professionally related, application-related tasks.

Technical Physics
On completion of the module, students should be able to analyse, calculate the occupation-specific tasks, recognise, understand and evaluate the physical relationships through experiments.

Design I
On completion of the module, students should be able to create 3D models and 3D assemblies with a 3D CAD programme, control the processing of the records for use in different areas of production, perform error and/or functional analyses in their solutions and also with the integration of the possibilities of a 3D CAD programme.

Information Technology
On completion of the module, students should be able to explain the structure of a computer system and describe the functions of the operating system. They should be able to plan and conceive a computer network, taking into account system security and to use industry-standard software for modelling engineering problems.

Quality Management
On completion of the module, students should be able to analyse the structure and operation of quality management systems. They should be able to capture, compress, and evaluate measurement values using control charts and appropriate tools for process optimisation.

Business Management and Communication I
On completion of the module, students should be able to create, analyse the requirements and contents of an annual financial statement, apply full or marginal costing on a case-by-case basis, and can derive production and sales decisions. They should be able to determine capital requirements, differentiate between types of finance and their alternatives, and both execute and evaluate case-related financing. They should be able to develop an understanding of the motivation and communication processes in professional situations. It also includes leading themselves and others, successfully form operational processes and solve problems that arise in a creative and goal-oriented fashion.

Automation Technology I
On completion of the module, students should be able to analyse, implement modern automation systems and to test, configure, dimension and evaluate application-specific circuits and controls, regulations and drives from different technologies to understand the system.

Production Management I
On completion of the module, students should be able to classify a manufacturing company, to use a planning system to develop alternative solutions. They should be able to describe basic mechanisms involved in production planning and control, plan the manufacturing process for selected manufacturing tasks and to control and monitor these while using ERP/PPS software. Topics include volume, scheduling and capacity planning.

Production Technology I
On completion of the module, students should be able to analyse production sequences in accordance with the design aspects, the economic aspects and with respect to the achievable production quality and schedule. They should also be able to evaluate, select the manufacturing processes for production planning, integrate computer-aided CNC programming with CAD/CAM system.

Design II
On completion of the module, students should be able to select appropriate machine elements based on an application, dimension and evaluate their solution. They should also be able to use vendor-specific information and calculation programmes.
Business Management and Communication II
On completion of the module, students should be able to formulate marketing goals, assign marketing instruments, describe the completion and fulfilment of contracts and present the legal consequences of contractual anomalies on the basis of case studies. They should be competence in personal, social, emotional, methodological and equip with cognitive skills, priority management and presentation skills to enable them to motivate others.

Automation Technology II
On completion of the module, students should be able to create programmes, have the necessary knowledge, standards, regulations, rules and safety guidelines to apply in the analysis, selection and testing of equipment and assemblies.

Production Management II
On completion of the module, students should be able to select, use methods to optimise production and work on projects according to the methodology of project management.

Production Technology II
On completion of the module, students should be able to optimise the manufacturing process with associated resources, taking into account ecological and economic aspects.

Final Year Project
On completion of the module, students should be able to apply the skills and knowledge acquired from the course into practice. The assigned or selected project will be guided and monitored by a Project Supervisor. Students are expected to plan, execute, evaluate, monitor the progress and exercise time management on their group project within the project time. This will include the purchasing of required material. A format presentation, with proper documentation and a completed written report are expected from the students.

Elective Modules

Training Company
On completion of the module, students should be able to apply the skills and knowledge in carrying out a company project.

Equipment Diagnostics
On completion of the module, students should be able to apply the skills and knowledge to troubleshoot hardware and software faults of machine/equipment at system level.

Lean Manufacturing
On completion of the module, students should be able to apply the applications of various quality assurance systems such as Kanban, Kaizen, Total Quality Management, Six Sigma and others in managing and controlling quality in manufacturing.

Robotics
On completion of the module, students should be able to apply the skills and knowledge to operate, program, troubleshoot and maintain an industrial robotic system used in a manufacturing plant.

German Language
On completion of the module, students should be able to apply the basic language proficiency to speak and understand conversational German so as to facilitate interaction with German-speaking people.
TECHNICAL DIPLOMA IN CULINARY ARTS

COURSE SYNOPSIS

This course provides students with the skills and knowledge to set up and operate a restaurant and manage its culinary operations, dinner events, purchasing and sales, F&B budget, staff as well as conduct research and development to introduce new menu and concepts for a French restaurant (non-halal).

On completion of the course, students should be able to:

- Apply techniques used in classical cookery in the preparation, cooking and garnishing of food.
- Develop restaurant menus and concepts.
- Perform menu planning, pricing and budgeting.
- Create a wine list.
- Control purchases and storage.
- Carry out a culinary production.
- Manage sales and promotion.
- Manage F&B events, restaurant operations and staff.

JOB OPPORTUNITIES

Technical Diploma in Culinary Arts graduates can be employed by restaurants and food & beverage establishments in hotels. Some of the job titles held by graduates may include Chef De Partie, Assistant Chef, Restaurant Supervisor and Assistant Manager.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Core Modules</th>
<th>180</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elective Modules</td>
<td></td>
</tr>
<tr>
<td>Total</td>
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</table>

COURSE STRUCTURE

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Culinary Apprenticeship (Modules 1-4)</td>
<td>12</td>
</tr>
<tr>
<td>Pastry Apprenticeship (Modules 1-2)</td>
<td>6</td>
</tr>
<tr>
<td>Dining Service Apprenticeship Seminar</td>
<td>1</td>
</tr>
<tr>
<td>History of French Gastronomy</td>
<td>1</td>
</tr>
<tr>
<td>IT Tools 1</td>
<td>1</td>
</tr>
<tr>
<td>Digital Environment</td>
<td>1</td>
</tr>
<tr>
<td>Hygiene and Security</td>
<td>1</td>
</tr>
<tr>
<td>French 1</td>
<td>2</td>
</tr>
<tr>
<td>Oenology and Sommelier</td>
<td>1</td>
</tr>
<tr>
<td>Product Knowledge</td>
<td>1</td>
</tr>
<tr>
<td>Documentary Research Methods</td>
<td>1</td>
</tr>
<tr>
<td>Creative Project 1: E-Magazine</td>
<td>2</td>
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<tr>
<td>Culinary Practice</td>
<td>12</td>
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<tr>
<td>Restaurant Service Practice</td>
<td>9</td>
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<tr>
<td>Commissary Practice</td>
<td>6</td>
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<tr>
<td>Bakery 1</td>
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<tr>
<td>Culinary Apprenticeship (Modules 5-7)</td>
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<tr>
<td>Organisational Behaviour</td>
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<tr>
<td>Production Organisation</td>
<td>2</td>
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<td>Sensory Analysis</td>
<td>1</td>
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<td>Sustainable Development</td>
<td>2</td>
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<tr>
<td>Marketing Fundamentals</td>
<td>2</td>
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<tr>
<td>Operational and Financial Management 1</td>
<td>2</td>
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<tr>
<td>French 2</td>
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<td>IT Tools 2</td>
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<tr>
<td>Food and Beverage Management 1</td>
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<tr>
<td>Creative Project 2: Culinary Management Seminar</td>
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<tr>
<td>Culinary Apprenticeship (Modules 8-9)</td>
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<tr>
<td>Bakery 2</td>
<td>2</td>
</tr>
<tr>
<td>Concept Creation and Development</td>
<td>2</td>
</tr>
<tr>
<td>Marketing Applied to Restaurant Industry</td>
<td>2</td>
</tr>
<tr>
<td>Kitchen Design</td>
<td>2</td>
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<tr>
<td>Health and Nutrition</td>
<td>1</td>
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<tr>
<td>Sommelier: Food and Wine Pairing</td>
<td>1</td>
</tr>
<tr>
<td>Rules and Standards in Restaurant Industry</td>
<td>1</td>
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<tr>
<td>Food and Beverage Management 2</td>
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</table>
TECHNICAL DIPLOMA COURSES

<table>
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<tr>
<th>Module Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Operational and Financial Management 2</td>
<td>2</td>
</tr>
<tr>
<td>Human Resources 1</td>
<td>2</td>
</tr>
<tr>
<td>Creative Project 3: Avant Scene</td>
<td>2</td>
</tr>
<tr>
<td>Analytical Project 1: Business Game Seminar</td>
<td>2</td>
</tr>
<tr>
<td>Analytical Project 2: Architecture and Engineering Seminar</td>
<td>2</td>
</tr>
<tr>
<td>Advanced Culinary and Pastry</td>
<td>14</td>
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<tr>
<td>Gastronomic Restaurant Cuisine</td>
<td>14</td>
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<tr>
<td>Creative Project 4: Gastronomic Menu</td>
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<tr>
<td>Consumer Behaviour and Analysis</td>
<td>2</td>
</tr>
<tr>
<td>General Tools for Chefs Communication</td>
<td>2</td>
</tr>
<tr>
<td>Technological Innovations</td>
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<tr>
<td>Food Science</td>
<td>1</td>
</tr>
<tr>
<td>Operational and Financial Management 3</td>
<td>2</td>
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<tr>
<td>Human Resource 2: Managing People</td>
<td>2</td>
</tr>
<tr>
<td>Supply Management</td>
<td>2</td>
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<tr>
<td>Change Management</td>
<td>2</td>
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<tr>
<td>French 3</td>
<td>2</td>
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<tr>
<td>Food Design</td>
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<tr>
<td>Concept Creation Project</td>
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<tr>
<td>In-Company Internship 2</td>
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</tbody>
</table>

**MODULE OBJECTIVES**

**Core Modules**

**Culinary Apprenticeship (Modules 1-4)**
On completion of the modules, students should be able to cut, prepare and cook meat, poultry, fish, seafood, egg and vegetable dishes according to French-style cooking and recipes.

**Pastry Apprenticeship (Modules 1-2)**
On completion of the modules, students should be able to produce pastries and creams, as well as prepare, assemble, garnish and finish simple desserts.

**Dining Service Apprenticeship Seminar**
On completion of the module, students should be able to set up the dining room, take orders and serve food to guests in a restaurant.

**History of French Gastronomy**
On completion of the module, students should be able to describe key events in the history of French gastronomy from prehistory until today.

**IT Tools 1 & 2**
On completion of the module, students should be able to use MSOffice suite (Word, Excel) for preparation of operational and financial management documents such as letters, resumes and recipe sheets.

**Digital Environment**
On completion of the module, students should be able to apply analytical and critical skills and knowledge in using different digital platforms such as culinary blogs and social media to develop brand image.

**Hygiene and Security**
On completion of the module, students should be able to apply the Hazard Analysis and Critical Control Points (HACCP) approach in handling, preserving and storing of food.

**French 1, 2 & 3**
On completion of the modules, students should be able to communicate, present and write in French using correct grammar, technical vocabulary and expressions used in a restaurant.

**Oenology & Sommelier**
On completion of the module, students should be able to apply wine tasting techniques to identify the basic flavours and tastes of wine and alcohol, create a wine list and recommend wines to match with dishes.

**Product Knowledge**
On completion of the module, students should be able to acquire a variation of product knowledge in terms of origin, culture, production methodology.

**Documentary Research Methods**
On completion of the module, students should be able to apply different research methodologies to obtain information for drafting reports and presentations.

**Creative Project 1: E-Magazine**
On completion of the module, students should be able to use digital tools to create an E-Magazine.
Culinary Practice
On completion of the module, students should be able to set up, organise and manage all aspects of food production.

Restaurant Service Practice
On completion of the module, students should be able to apply the concepts of service excellence framework in a restaurant environment.

Commissary Practice
On completion of the module, students should be able to have a comprehensive overview of a restaurant operational process such as supply coordination and the use of procurement software.

Bakery 1 & 2
On completion of the modules, students should be able to create and produce a variety of breads and pastries.

Culinary Apprenticeship (Modules 5-7)
On completion of the module, students should be able to prepare traditional dishes using different proteins such as beef, veal, seafood and crustaceans.

Organisational Behaviour
On completion of the module, students should be able to acquire an in-depth understanding of human behaviour in an organisation from the psychological, sociological and cultural perspectives.

Production Organisation
On completion of the module, students should be able to plan and organise work activities for kitchen staff in the production of food in compliance with food safety and hygiene guidelines.

Sensory Analysis
On completion of the module, students should be able to analyse dishes using their five senses and describe their characteristics in terms of aspect, smell, texture, savour and aroma using the appropriate vocabulary.

Sustainable Development
On completion of the module, students should be able to apply the concept of sustainable development and propose sustainable initiatives to reduce the economical, societal and environmental impacts on the industry.

Marketing Fundamentals
On completion of the modules, students should be able to apply analytical marketing concepts and strategies to promote a restaurant.

Operational and Financial Management 1, 2 & 3
On completion of the module, students should be able prepare basic financial documents using operational and financial tools in accordance to local accounting standards.

Food and Beverage Management 1 & 2
On completion of the modules, students should be able to develop a restaurant menu, compute costing, determine pricing, develop a budget for operating a restaurant and develop policies for the management of purchases and stock control.

Creative Project 2: Culinary Management Seminar
On completion of the module, students should be able to work in teams to produce a 3-course menu.

Culinary Apprenticeship (Modules 8-9)
On completion of the module, students should be able to prepare traditional French dishes.

Concept Creation and Development
On completion of the module, students should be able to apply the principles of concept creation and development to enhance the restaurant business.

Marketing Applied to Restaurant Industry
On completion of the module, students should be able to apply the concept and principles of marketing in the restaurant industry.

Kitchen Design
On completion of the module, students should be able to plan and design an efficient kitchen layout with a functional cooking area that is equipped with energy-saving cooking and food storage equipment.

Health and Nutrition
On completion of the module, students should be able to apply knowledge of food nutrition to create balanced menus.
Sommelier: Food and Wine Pairing
On completion of the module, students should be able to apply their skills and knowledge in wine tasting, and distinguish the different subdivisions, main grape varietals, appellations and different types of European and International wines. They should also be able to speak about the wine using appropriate vocabulary and apply knowledge in food and wine pairing.

Rules and Standards in Restaurant Industry
On completion of the module, students should be able to apply the rules and regulations for starting and running a restaurant.

Human Resource 1
On completion of the module, students should be able to apply legal principles and administrative aspects of personnel management which includes hiring, training and evaluation.

Creative Project 3: Avant Scene
On completion of the module, students should be able to design and set up a “pop-up” restaurant.

Analytical Project 1: Business Game Seminar
On completion of the module, students should be able to apply strategic and analytical concepts to design, create and price menu items for their proposed restaurant in a competitive setting.

Analytical Project 2: Architecture & Engineering Seminar
On completion of the module, students should be able to apply the concepts of architectural and engineering innovations to design kitchen and restaurant set-ups.

Advanced Culinary and Pastry
On completion of the module, students should be able to apply advanced cooking techniques such as low temperature cooking and vacuum cooking.

Gastronomic Restaurant Cuisine
On completion of the module, students should be able to apply culinary techniques to produce a variety of dishes in a gastronomic restaurant and supervise a section in the kitchen.

Creative Project 4: Gastronomic Menu
On completion of the module, students should be able to develop a gastronomic menu.

Consumer Behaviour and Analysis
On completion of the modules, students should be able to apply their knowledge of Customer Relationship Management (CRM) and adapt it to the restaurant industry.

General Tools for Chefs Communication
On completion of the module, students should be able to communicate professionally at different platforms.

Technological Innovations
On completion of the module, students should be able to apply knowledge of new culinary technologies for operational efficiency.

Food Science
On completion of the module, students should be able to apply knowledge in biochemistry in food preparation and cooking.

Human Resource 2: Managing People
On completion of the module, students should be able to apply new management approaches to manage team, resolve conflicts and discipline staff.

Supply Management
On completion of the module, students should be able to apply specific tools and techniques to optimise supply management.

Change Management
On completion of the module, students should be able to apply the principles of change management in operating a restaurant.

Food Design
On completion of the module, students should be able to apply knowledge in the different aspects of food design.

Concept Creation Project
On completion of the module, students should be able to apply knowledge and managerial competence acquired during training to develop an innovative and realistic restaurant for dining on-site.

In-Company Internship 1 & 2
On completion of the module, students should be able to integrate their skills and knowledge in a real work environment.
**HIGHER NITEC IN BIOTECHNOLOGY**

**COURSE SYNOPSIS**

On completion of the course, students should be able to

- Perform laboratory housekeeping activities such as handling and storage of chemicals and biological materials, and disposing of chemical and biohazardous waste in a safe manner.
- Perform pre-testing activities such as cleaning of laboratory apparatus and glassware, interpret data sheets and verification of equipment suitability.
- Prepare reagents/solutions for products and processes following standardised formulas.
- Perform analysis of test samples using various techniques such as volumetric titration and gravimetric extraction.
- Perform biochemical and microbial tests, identification of growth conditions of microorganism, enumeration and maintenance of microbes/microbial culture.
- Compile and compute data, interpret test results and analyses and generate analysis report.
- Perform calibration of test equipment and troubleshooting of minor laboratory equipment breakdown.
- Maintain proper records of standards, test procedures and laboratory equipment usage.
- Perform qualitative and quantitative testing of biological compounds and biomolecule analytical tests.

**JOB OPPORTUNITIES**

*Higher Nitec* in Biotechnology graduates are well suited for employment as Biotech Laboratory Technicians in a research and development department or quality control laboratory in the medical technology, biotechnology or laboratory testing/accreditation sectors. Their roles include performing a wide range of laboratory procedures and technical functions to support researchers or analysts with the preparative and maintenance work for research and development, analysis and testing activities. Employment prospects are bright with the increasing emphasis in life sciences and demand for health care services that would create a demand for Biotech Laboratory Technicians in the organizations mentioned above. There are excellent opportunities for career advancement to supervisory positions and beyond in the life science industry.

**CERTIFICATION**

Credits required for certification:

<table>
<thead>
<tr>
<th>Core Modules</th>
<th>47</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Skills Modules</td>
<td>9</td>
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<tr>
<td>Elective Modules</td>
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<td><strong>Total</strong></td>
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**COURSE STRUCTURE**

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Introductory Chemistry</td>
<td>5</td>
</tr>
<tr>
<td>Analytical Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>Laboratory Techniques and Quality Control</td>
<td>3</td>
</tr>
<tr>
<td>Laboratory Mathematics and Data Analysis</td>
<td>8</td>
</tr>
<tr>
<td>General Microbiology</td>
<td>7</td>
</tr>
<tr>
<td>Analytical Biochemistry</td>
<td>6</td>
</tr>
<tr>
<td>Molecular Bioscience</td>
<td>6</td>
</tr>
<tr>
<td>Industry Attachment</td>
<td>8</td>
</tr>
<tr>
<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
<td></td>
</tr>
<tr>
<td>Tissue Culture Techniques</td>
<td>2</td>
</tr>
<tr>
<td>Medical Laboratory Practice*</td>
<td>2</td>
</tr>
<tr>
<td>Essentials in Environmental Science</td>
<td>2</td>
</tr>
<tr>
<td>Introduction to Cosmetic Science</td>
<td>2</td>
</tr>
<tr>
<td>Urban Farming Laboratory Techniques</td>
<td>2</td>
</tr>
<tr>
<td><strong>ELECTIVES (GENERAL)</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to pages 300-301</td>
<td></td>
</tr>
<tr>
<td><strong>LIFE SKILLS MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to page 304</td>
<td></td>
</tr>
</tbody>
</table>

*Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.*
Students, who opt to study the Elective Module – Medical Laboratory Practice in Year 2 of study, are required to undergo Health Screening for Hepatitis B. Students will be reassigned to another elective if they are found to be Hep B positive.

**MODULE OBJECTIVES**

**Core Modules**

**Introductory Chemistry**
On completion of the module, students should be able to perform manual titration, as well as identify the common elements of organic molecules, nomenclature used, chemical structure and bonding, common functional groups, and the properties associated with the various functional groups of organic compounds.

**Analytical Chemistry**
On completion of the module, students should be able to perform analysis using simple equipment to perform pH test, automated titration, physical tests, extractions, gravimetric and particle size analysis.

**Laboratory Techniques and Quality Control**
On completion of the module, students should be able to prepare stock solution and perform dilution, maintain the quality standards of chemical laboratory, including record-keeping for traceability purposes, calibration of measuring instruments, and application of quality control tools for laboratory applications.

**Laboratory Mathematics and Data Analysis**
On completion of the module, students should be able to apply the various mathematical principles such as algebra, logarithms and graphs construction for laboratory operations and analysis. They should also be able to collate data and perform basic functions using common software programme.

**General Microbiology**
On completion of the module, students should be able to handle the micro-organisms safely, perform isolation of micro-organisms, identify the characteristics of common groups of micro-organisms, and perform various techniques for their microscopy and cultivation.

**Analytical Biochemistry**
On completion of the module, students should be able to perform the analysis of biological compounds using various biochemical and chromatographic techniques as well as to interpret the results obtained.

**Molecular Bioscience**
On completion of the module, students should be able to perform various molecular biology techniques for the manipulation and analysis of proteins and DNA.

**Industry Attachment**
Students are provided with the opportunity to work in a laboratory-based environment to gain hands-on training in the real work environment.

**Electives (Course Specific)**

**Tissue Culture Techniques**
On completion of the module, students should be able to apply the fundamentals of tissue culture, and to prepare culture media, as well as seeding and propagating cell cultures in a tissue culture laboratory.

**Medical Laboratory Practice**
On completion of the module, students should be able to perform basic preparative and analytical techniques which are relevant to a medical diagnostic laboratory.

**Essentials in Environmental Science**
On completion of the module, students should be able to perform tests on air, water and effluent waste in monitoring of environment and pollution in the manufacturing industries.

**Introduction to Cosmetic Science**
On completion of the module, students should be able to prepare simple cosmetic products using basic formulations as well as to perform stability tests to apply the safety concept of cosmetic evaluations based on international legislations.

**Urban Farming Laboratory Techniques**
On completion of this module, students should be able to perform quality testing on growth media (water, soil, compost, etc.) for the aquaculture and agriculture industries.

**Electives (General)**
As reflected on pages 300-301.

**Life Skills Modules**
As reflected on page 304.
HIGHER NITEC IN CHEMICAL TECHNOLOGY

COURSE SYNOPSIS

On completion of the course, students should be able to

- Perform laboratory housekeeping activities such as handling and storage of chemicals, and disposing of chemicals in a safe manner.
- Perform pre-testing activities such as cleaning of laboratory apparatuses and glassware, and verification of equipment suitability.
- Prepare chemical solutions for products and processes following standardised formulas.
- Conduct and analyse test samples using various techniques such as volumetric titration, gravimetric extraction, spectroscopy, chromatography and physical separation.
- Compile and compute data, interpret test results and analyses and generate analysis reports.
- Perform calibration of test equipment and troubleshooting of minor laboratory equipment breakdown.
- Maintain proper records of standards, test procedures and laboratory equipment usage.

JOB OPPORTUNITIES

Higher Nitec in Chemical Technology graduates are suitable for the career as Chemical Laboratory Technicians/Assistants in the R&D, quality assurance or quality control laboratory of companies in the various industry sectors such as food, chemicals, petrochemicals, pharmaceutical and environmental. Their roles include performing laboratory tests and a variety of technical support functions requiring the application of established or prescribed procedures and techniques to assist chemists, engineers or analysts in research, development and testing activities. There are excellent opportunities for career advancement to supervisory positions and beyond.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Modules</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
<td>47</td>
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<tr>
<td>Life Skills Modules</td>
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<tr>
<td>Elective Modules</td>
<td>4</td>
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<tr>
<td><strong>Total</strong></td>
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COURSE STRUCTURE

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
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</tr>
<tr>
<td>Introductory Chemistry</td>
<td>5</td>
</tr>
<tr>
<td>Analytical Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>Laboratory Techniques and Quality Control</td>
<td>3</td>
</tr>
<tr>
<td>Laboratory Mathematics and Data Analysis</td>
<td>8</td>
</tr>
<tr>
<td>Sample Handling and Processing</td>
<td>5</td>
</tr>
<tr>
<td>Basic Instrumental Analysis</td>
<td>7</td>
</tr>
<tr>
<td>Advanced Instrumental Analysis</td>
<td>7</td>
</tr>
<tr>
<td>Industry Attachment</td>
<td>8</td>
</tr>
<tr>
<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
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</tr>
<tr>
<td>Introduction to Microbiology</td>
<td>2</td>
</tr>
<tr>
<td>Essentials in Environmental Science</td>
<td>2</td>
</tr>
<tr>
<td>Introduction to Cosmetic Science</td>
<td>2</td>
</tr>
<tr>
<td>Urban Farming Laboratory Techniques</td>
<td>2</td>
</tr>
<tr>
<td><strong>ELECTIVES (GENERAL)</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to pages 300–301</td>
<td></td>
</tr>
</tbody>
</table>

LIFE SKILLS MODULES

Refer to page 304

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.

MODULE OBJECTIVES

Core Modules

Introductory Chemistry

On completion of the module, students should be able to perform manual titration, as well as identify the common elements of organic molecules, nomenclature used, chemical structure and bonding, common functional groups, and the properties associated with the various functional groups of organic compounds.
Analytical Chemistry
On completion of the module, students should be able to perform analysis using simple equipment to perform pH test, automated titration, physical tests, extractions, gravimetric and particle size analysis.

Laboratory Techniques and Quality Control
On completion of the module, students should be able to prepare stock solution and perform dilution, maintain the quality standards of chemical laboratory, including record-keeping for traceability purposes, calibration of measuring instruments, and application of quality control tools for laboratory applications.

Laboratory Mathematics and Data Analysis
On completion of the module, students should be able to apply the various mathematical principles such as algebra, logarithms and graphs construction for laboratory operations and analysis. They should also be able to collate data and perform basic functions using common software programme.

Sampling Handling and Processing
On completion of the module, students should be able to perform common sample pre-treatment methodologies, as well as sampling activities and processes which comply with industrial standards such as cGMP and GLP.

Basic Instrumental Analysis
On completion of the module, students should be able to perform the various modes of spectroscopy which include ultraviolet and infrared spectrometry, atomic spectrometry, and the applications of inductive-coupled plasma and thermal bench instruments. They will also be taught to troubleshoot and maintain spectroscopic and thermal bench instruments.

Advanced Instrumental Analysis
On completion of the module, students should be able to perform the various modes of chromatography which include High Performance Liquid Chromatography (HPLC), Gas Chromatography (GC), LC-Mass Spectrometry and GC-Mass Spectrometry. They will also be able to troubleshoot and conduct basic routine maintenance for chromatographic instruments.

Industry Attachment
Students are provided with the opportunity to work in a laboratory-based environment to gain hands-on training in the real work environment.

Electives (Course Specific)

Introduction to Microbiology
On completion of the module, students should be able to perform basic microbiological techniques, such as safe-handling, examining and cultivating of microorganisms.

Essentials in Environmental Science
On completion of the module, students should be able to perform tests on air, water and effluent waste in monitoring of environment and pollution in the manufacturing industries.

Introduction to Cosmetic Science
On completion of the module, students should be able to prepare simple cosmetic products using basic formulations as well as to perform stability tests to apply the safety concept of cosmetic evaluations based on international legislations.

Urban Farming Laboratory Techniques
On completion of this module, students should be able to perform quality testing on growth media (water, soil, compost, etc.) for the aquaculture and agriculture industries.

Electives (General)
As reflected on pages 300-301.

Life Skills Modules
As reflected on page 304.
**HIGHER NITEC IN PARAMEDIC & EMERGENCY CARE**

**COURSE SYNOPSIS**

On completion of the course, students should be able to

- Maintain operational readiness of workstation.
- Provide quality service.
- Manage pre-hospital emergencies.
- Manage special population groups.
- Manage special situations.

**JOB OPPORTUNITIES**

*Higher Nitec* in Paramedic & Emergency Care graduates are employed as paramedics by ambulance service providers such as SCDF, or other private ambulance operators. They can also be employed to assume various roles such as trainers, emergency response medics in various healthcare organizations and hospitals.

**CERTIFICATION**

Credits required for certification:

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
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<td>Life Skills Modules</td>
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<td>Elective Modules</td>
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<tr>
<td><strong>Total</strong></td>
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**COURSE STRUCTURE**

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
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<tr>
<td>Human Bioscience</td>
<td>3</td>
</tr>
<tr>
<td>Paramedic Studies and Skills</td>
<td>4</td>
</tr>
<tr>
<td>Paramedic Lab I</td>
<td>4</td>
</tr>
<tr>
<td>Industry Attachment - Ambulance Practicum</td>
<td>3</td>
</tr>
<tr>
<td>Paramedic Lab II</td>
<td>4</td>
</tr>
<tr>
<td>Paramedic Stimulation I</td>
<td>3</td>
</tr>
<tr>
<td>Industry Attachment - Ambulance and Hospital Practicum</td>
<td>5</td>
</tr>
<tr>
<td>Special Population Groups</td>
<td>5</td>
</tr>
<tr>
<td>Paramedic Stimulation II</td>
<td>4</td>
</tr>
<tr>
<td>Industry Attachment - Pre-hospital Consolidation Placement</td>
<td>5</td>
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<tr>
<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
<td></td>
</tr>
<tr>
<td>Special Incidents and Operations</td>
<td>2</td>
</tr>
</tbody>
</table>

**LIFE SKILLS MODULES**

Refer to page 304
Module Objectives

Core Modules

Human Bioscience
On completion of the module, students should be able to identify the various structures and describe the functions of the various body systems.

Paramedic Studies and Skills
On completion of the module, students should be able to assess and manage the patient systematically and professionally.

Paramedic Lab I
On completion of the module, students should be able to assess and implement a team-based care plan for patients with various injuries in the pre-hospital setting.

Industry Attachment - Ambulance Practicum
On completion of the module, students should be able to apply the skills and knowledge acquired during institutional training, and assist the crew leader at the workplace.

Paramedic Lab II
On completion of the module, students should be able to assess and implement a team-based care plan for patients with the various medical conditions in the pre-hospital setting.

Paramedic Simulation I
On completion of this module, students should be able to gain confidence in managing patients with various injuries in the pre-hospital settings.

Industry Attachment - Ambulance and Hospital Practicum
On completion of the module, students should be able to apply the skills and knowledge acquired during institutional training, and hone those skills at the workplace under supervision.

Special Population Groups
On completion of the module, students should be able to assist in the emergency delivery of a new-born in the pre-hospital settings.

Paramedic Simulation II
On completion of the module, students should be able to gain confidence in managing patients with various medication conditions in the pre-hospital settings.

Industry Attachment - Pre-hospital Consolidation Placement
On completion of the module, students should be able to integrate and adapt the skills and knowledge acquired during institutional training, and develop confidence and competences in managing patient in the pre-hospital setting.

Electives (Course Specific)

Special Incidents and Operations
On completion of the module, students should be able to manage patients in non-routine situations.

Life Skills Modules
As reflected on page 304.
NITEC IN APPLIED FOOD SCIENCE

COURSE SYNOPSIS

On completion of the course, students should be able to

- Maintain food safety and food hygiene standards in food industries.
- Perform basic measurements and calibration techniques in the laboratory.
- Conduct physical and chemical checks and tests.
- Perform basic microbiological tasks.
- Conduct laboratory analysis for incoming, in-process and final products.
- Perform pre- and post-cleaning, start-up and shutdown of food processing equipment.
- Operate food processing equipment.
- Carry out basic maintenance activities of plant and equipment.
- Carry out logging and documentation of manufacturing activities.
- Perform food service operations.
- Carry out activities in compliance with legislative and organisational requirements.
- Assist in product development activities.

JOB OPPORTUNITIES

Nitec in Applied Food Science graduates are employed in food manufacturing/processing/production plants and factories, as well as major F&B retail outlets. Some of the job titles held by graduates include Food Technician, Food Production Technician and Food Processing Technician. There are excellent opportunities for career advancement to supervisory positions and beyond. Food Technicians, with work experience and good performance, may be promoted to Food Production Supervisors.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
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<td>Life Skills Modules</td>
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<tr>
<td>Elective Modules</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>64</strong></td>
</tr>
</tbody>
</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Applied Science Fundamentals
On completion of the module, students should be able to identify common elements of organic molecules, inorganic molecules, nomenclature used, chemical structure and bonding, common functional groups as well as the properties associated with the various functional groups of organic compounds, inorganic compounds and perform basic measurements in the laboratory.

Introduction to Food Science
On completion of the module, students should be able to identify the various food groups, components in food including their physical and chemical properties, identify the select criteria and perform inspections through physical checks or using equipment.

Food Processes and Equipment
On completion of the module, students should be able to follow the safety requirements in a processing plant, explain the various methods of food preparation and processing, perform recording of process parameters, operate food preparation and processing equipment safely, and troubleshoot product deviations of the process.

Food Microbiology
On completion of the module, students should be able to perform environmental monitoring, conduct microbial analysis of food samples, perform basic microscopic technique and identify the characteristics of micro-organisms.

Fundamentals of Laboratory Chemistry
On completion of the module, students will be able to perform basic laboratory techniques, organise laboratory data and perform basic analytical preparation and measurement.

Food Service and Business Management
On completion of the module, students will be able to identify the various types of food service operations, develop products / services for customers and perform specific procedures pertaining to food service operations.

Food Analysis
On completion of the module, students should be able to perform in-coming, in-process and final product laboratory analysis as well as interpret data obtained from the various tests.

Food Safety and QMS
On completion of the module, students should be able to explain the importance of food hygiene, practise good personal hygiene and housekeeping, conduct audit on food premises and monitor the critical control points at the various stages of food production.

Industry Attachment
Students are provided with the opportunity to work in food processing/manufacturing/catering or food laboratory analysis environments to gain hands-on training in the real work environment.

Electives (Course Specific)

Food Packaging
On completion of the module, students should be able to select suitable packaging materials, perform quality tests/check for packaging materials as well as assess the effectiveness of applied packaging technology on food product shelf life.

Product and Process Development
On completion of the module, students will be able to plan and design tasks specific to a project and perform planned tasks according to the project plan. They will also be required to prepare a report and orally present the data and results collated from their project.

Electives (General)
As reflected on pages 302-304.

Life Skills Modules
As reflected on page 304.
**NITEC IN CHEMICAL PROCESS TECHNOLOGY**

### COURSE SYNOPSIS

On completion of the course, students should be able to

- Maintain health, safety, security, environment and quality standards.
- Perform process operation.
- Operate process equipment.
- Monitor and control process conditions.
- Operate process unit.
- Prepare equipment for maintenance.
- Perform plant operation.
- Perform cGMP activities and maintain cGMP environment.
- Prepare for biologics manufacturing process.
- Perform upstream & downstream operations.
- Handle, store and transport hazardous materials.
- Operate, monitor and control continuous or batch processes.
- Provide routine and preventive maintenance.
- Conduct in-process tests.
- Perform start-up and shutdown of equipment.
- Record data in documents complying with Good Documentation Practice (GDP).
- Carry out plant turnaround and changeover activities.

### JOB OPPORTUNITIES

Nitec in Chemical Process Technology graduates are employed by companies in the Petrochemical, Bio-pharmaceutical and Process Instrumentation industries. Some of the job titles held by graduates include Process Technician, Operation Technician, Plant Maintenance Technician, Process Instrument Technician and Engineering Assistant. There are excellent opportunities for career advancement to supervisory positions and beyond.

### CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
<td>43</td>
</tr>
<tr>
<td>Specialisation Modules</td>
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<tr>
<td>Life Skills Modules</td>
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<tr>
<td>Elective Modules</td>
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</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>65</strong></td>
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</tbody>
</table>

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### COURSE STRUCTURE

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Occupational Health, Safety and Security</td>
<td>5</td>
</tr>
<tr>
<td>Product Quality and Environment Standards</td>
<td>7</td>
</tr>
<tr>
<td>Process Instrumentation and Control</td>
<td>7</td>
</tr>
<tr>
<td>Process Equipment and Operation</td>
<td>7</td>
</tr>
<tr>
<td>Fundamentals in cGMP</td>
<td>4</td>
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<tr>
<td>Plant Processes</td>
<td>5</td>
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<tr>
<td>Industry Attachment</td>
<td>8</td>
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<tr>
<td><strong>SPECIALISATION MODULES (CHOOSE ONE)</strong></td>
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<tr>
<td>Biologics and Pharmaceutical Processes</td>
<td>7</td>
</tr>
<tr>
<td>Equipment Maintenance and Utilities</td>
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<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
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</tr>
<tr>
<td>Basic Microbiology Techniques</td>
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<tr>
<td>Distributed Control System</td>
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<tr>
<td>Process Gas Chromatography</td>
<td>3</td>
</tr>
<tr>
<td>Waste Water Treatment and Processes</td>
<td>3</td>
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<tr>
<td><strong>ELECTIVES (GENERAL)</strong></td>
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</tr>
<tr>
<td>Refer to pages 302-304</td>
<td></td>
</tr>
<tr>
<td><strong>LIFE SKILLS MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to page 304</td>
<td></td>
</tr>
</tbody>
</table>

Refer to page 304
MODULE OBJECTIVES

Core Modules

Occupational Health, Safety and Security
On completion of the module, students should be able to apply skills and knowledge in performing workplace housekeeping, responding in emergency situations and rendering first aid. They should also be able to apply skills and knowledge in workplace safety, confined space safety, safety audits, risk assessment, permit-to-work system, LOTO, and electrical safety.

Product Quality and Environment Standards
On completion of the module, students should be able to apply statistical process control, perform instrumental analysis on petroleum and pharmaceutical products, perform chromatography, spectroscopy and air-pollution control test. They also learn to conduct tests on effluent waste, perform water quality tests, carry out waste treatment facility operation and handle gas emission upsets.

Process Instrumentation and Control
On completion of the module, students should be able to perform line tracing and monitor process parameters. They also learn to carry out manual valve operation, control valve with handwheel operation, control valve by-pass operation, and perform instrument functionality check.

Process Equipment and Operation
On completion of the module, students should be able to carry out pump operation, filter operation, heat exchanger operation, reactor operation, mixer operation and ejector operation. They also learn to load and unload material, perform inter-tank transfer, change-over of process equipment and collection of raw material and sampling.

Fundamentals in cGMP
On completion of the module, students should be able to adhere to good documentation practices, carry out personal hygiene practices and sanitisation process, perform gowning procedure and handling of materials in the cleanroom. They also learn to carry out plant turnaround and changeover activities, report GMP deviations as well as perform media, buffer, reagents, solvent preparation and dispensing.

Plant Processes
On completion of the module, students should be able to carry out distillation operation, gas absorber and gas adsorber operation. They also learn to carry out extraction unit operation, evaporator operation and crystalliser operation.

Industry Attachment
The module provides opportunity for students to apply the concepts and skills acquired during institutional training in a real work environment; gain hands-on practical training pertaining to the Petrochemical, Bio-pharmaceutical and Process Instrumentation Industry.

Specialisation Modules

Biologics and Pharmaceutical Processes
On completion of the module, students should be able to perform seed and inoculum preparation activities, carry out bioreactor setup and process monitoring operation, perform CIP operation and SIP operation, monitor cell harvesting and filtration operation, perform chromatography column packing and operate large-scale chromatography and filtration equipment. They also learn to perform homogenisation and micronizing operation, carry out scrubber operation, isolator operation, phase separation, equipment cleaning operation and waste pre-treatment operation.

Equipment Maintenance and Utilities
On completion of the module, students should be able to carry out reverse osmosis water plant operation, carry out boiler unit operation, carry out steam header and condenser unit operation and carry out compressed air unit operation. They also learn to perform maintenance on pipe system and equipment, check pump and compressor performance, troubleshoot abnormal conditions in pumps and compressors, and prepare process equipment for shutdown maintenance.

Electives (Course Specific)

Basic Microbiology Techniques
On completion of the module, students should be able to apply skills and knowledge in performing media preparation and sterilisation. The students will also learn testing skills in microbiological culture, identification and enumeration of microbes from industry samples.

Distributed Control System
On completion of the module, students should be able to use distributed control system software to configure simple field control unit, function block as well as build and modify simple graphics and reports.
Process Gas Chromatography
On completion of the module, students should be able to apply skills and knowledge to operate process gas chromatograph and conduct process gas chromatograph calibration. They also learn to service switching valve and conduct routine maintenance of the sampling system.

Waste Water Treatment and Processes
On completion of the module, students should be able to apply skills and knowledge in performing setting up and commissioning of sand filtration system and conducting various water quality tests on raw water or wastewater specimens in accordance to safety and health parameters. They will also gain knowledge on the various water treatment processes and emerging water treatment technologies available in Singapore.

Electives (General)
As reflected on pages 302-304.

Life Skills Modules
As reflected on page 304.
NITEC IN COMMUNITY CARE & SOCIAL SERVICES

COURSE SYNOPSIS

On completion of the course, students should be able to

- Assist clients with activities of daily living.
- Perform clinical procedures based on clients’ / residents’ needs, under supervision of trained staff.
- Assist clients with mobility.
- Support trained staff in rehabilitation programmes, care and counselling of clients.
- Support trained staff in the activities of daily living (ADL) training.
- Organise and facilitate activities and events for clients / residents and their families.
- Support trained staff in conducting routine home visits.
- Support the daily operations of the centre/home.
- Support trained staff in emergency situations.

JOB OPPORTUNITIES

Nitec in Community Care & Social Services graduates are employed in Social Service Agencies such as Community Hospitals, Nursing Homes, Centres for Persons with Special Needs, Children’s Homes, Community Rehabilitation Centres, Day Care Centres and Day Activities Centres. Some of the job titles held by graduates include Social Service Assistant, Therapist Aide, Assistant Programme Coordinator, Programme Assistant, Assistant Welfare Officer, and Activities Officer. There are opportunities for career advancement in the community and social sectors. Graduates with good grades may progress to diploma courses being offered by ITE and the Polytechnics and other advanced courses offered by the Social Service Institute.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
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<td>Life Skills Modules</td>
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<td>67</td>
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</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Anatomy & Physiology
On completion of the module, students should be able to describe the organisation of the human body by explaining the structures and functions of the skin, blood, cardiovascular systems, respiratory systems, skeletal systems, muscular systems, nervous systems and urinary systems. They should also be able to relate the common terminologies and clinical manifestations of common diseases.

Client Care
On completion of the module, students should be able to perform infection control procedures, assist with activities of daily living of clients, render first aid, perform simple bandaging, assist with health care procedures, perform health screening, assess nutritional needs, provide medication needs and assist in performing last office of clients.

Social Services in Singapore
On completion of the module, students should be able to describe the roles of social services and responsibilities of staff working in the sector, as well as explain the legislative acts and policies pertaining to the social service sector in Singapore. In addition, they should be able to demonstrate basic attending techniques towards clients in the social services sector.

Rehabilitative Services - Physiotherapy
On completion of the module, students should be able to assist therapists in conducting therapeutic exercises and applying electrical/mechanical modalities for clients. They should also be able to assist clients with various medical conditions in transfers and use of mobility aids.

Centre Operations
On completion of the module, students should be able to explain the types of centres in Singapore, assist with the daily operations, carry out workplace safety and health procedures and perform administrative work. In addition, they should be able to orientate a new client and managing volunteers.

Rehabilitative Services – Occupational Therapy
On completion of the module, students should be able to assist the therapists in training clients in Activities of Daily Living and vocational skills. They would acquire the knowledge to plan and conduct group activities and home screening to meet clients’ needs. Students should also be able to prepare and maintain therapy equipment and records.

Introduction to Social Work
On completion of the module, students should be able to explain the helping process and ethical practices in social work profession. They should also be able to provide an overview of social work practices pertaining to working with children, youth, family, elderly, persons with disabilities, persons with mental health issues, people with substance abuse and other addictions, ex-offenders and migrants.

Programme Management & Group Work
On completion of the module, students should be able to explain the framework and processes of group work and group dynamics. They should also be able to assist trained staff to plan, lead and terminate group work, community activities or events.

Industry Attachment
Students would be able to integrate and apply the skills and knowledge acquired at ITE College, and further develop competencies at the workplace.

Electives (Course Specific)

Disability Studies
On completion of the module, students should be able to assist in managing clients with various forms of disability as well as in improving the quality of life through person-centred services within a community setting.

Geriatric Studies
On completion of the module, students should be able to demonstrate a basic understanding of the common geriatric and chronic conditions, as well as the problems associated with aging. Students should also be able to use the various types of assessment tools to assess the needs of geriatric clients.

Electives (General)
As reflected on pages 302-304.

Life Skills Modules
As reflected on page 304.
NITEC IN NURSING

COURSE SYNOPSIS

On completion of the course, students should be able to

- Perform and practices in accordance with institutional/ national legislation, policies and procedural guidelines.
- Participate in the development, implementation, evaluation and documentation of planned nursing care with supervision by the RN.
- Use a range of data gathering techniques including observation, interview, physical examination and measurement to assess client; recognise and report changes in client’s health and functional status to the RN.
- Listen, clarify and communicate clearly through verbal/ non-verbal, written and electronic means to ensure effective communication with clients, families and other healthcare professionals.
- Conduct educational needs assessment, apply principles of learning in health education, and provide accurate and appropriate education to clients.

JOB OPPORTUNITIES

Nitec in Nursing graduates are employed as Enrolled Nurses in various healthcare organisations and hospitals. There are excellent opportunities for career advancement within the healthcare industry. The challenge is for students to prepare themselves by upgrading their skills and knowledge by taking up higher-level courses such as the Diploma in Nursing conducted by the Polytechnic.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Core Modules</th>
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<td>Life Skills Modules</td>
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<td>Elective Modules</td>
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<td><strong>Total</strong></td>
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</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Nursing Studies and Skills
On completion of the module, students should be able to acquire the core competencies in the domains of ethical, legal and professional clinical practice in the delivery of safe and holistic care to patients.

Biological Science I
On completion of the module, students should be able to identify and describe the various parts and functions of the systems of the human body; discuss the major physical and physiological changes of the human body as the individual grows and develop across a lifespan; explain the importance of appropriate nutrition; describe the effects of pathological microorganisms on the human body and discuss the use of common pharmacological products and their nursing implications in a health care setting.

Behavioural Science I
On completion of the module, students should be able to explain the psychological implications and adjustments during each stage of human development.

Industry Attachment – Clinical Practice I
On completion of the module, students should be able to apply the concepts and skills acquired from Nursing Studies and Skills, Biological Science I, Behavioural Science I and Life Skills modules in the delivery of holistic care to patients in a variety of health care settings.

Patient Care A
On completion of the module, students should be able to describe and demonstrate holistic nursing care of patients with alterations of various body systems and requiring different treatment modalities.

Patient Care B
On completion of the module, students should be able to describe and demonstrate holistic nursing care of specific groups of patients, and those with alterations of various body systems and requiring different treatment modalities.

Biological Science II
On completion of the module, students should be able to describe the various parts and functions of the system of the human body; the effects of pathological micro-organisms and discuss the use of pharmacological products and their nursing implications.

Behavioural Science II
On completion of the module, students should be able to explain the basic sociological concepts in the context of the health care setting; and describe common abnormal behavioural patterns and apply the relevant knowledge and skills to provide holistic care to patients.

Critical Thinking and Reflection in Practice
On completion of the module, students should be able to apply the critical thinking skills in clinical situations to ensure the delivery of safe, holistic and quality nursing care to patients.

Industry Attachment – Clinical Practice II
On completion of the module, students should be able to apply the concepts and skills acquired from Patient Care A, Patient Care B, Biological Science II, Behavioural Science II, 2 out of 5 course specific elective modules offered and Life Skills modules in the delivery of holistic care to patients in a variety of health care settings.

Industry Attachment – Pre-Enrolment Clinical Practice
On completion of the module, students should be able to consolidate their theoretical knowledge and clinical skills acquired during the course of training and apply them in the prospective work environment.

Electives (Course Specific)

Trends and Issues of Elder Care
On completion of the module, students should be able to assess the needs of the older persons and apply the relevant knowledge and skills to give them holistic care in various healthcare settings.

Mental Health in Nursing
On completion of the module, students should be able to identify the altered mental status of a psychiatric patient and implement interventions prescribed.

Cancer and Palliative Care
On completion of the module, students should be able to apply basic concepts and principles of oncology nursing to ensure the delivery of safe, holistic and quality care to patients with cancer.
Evidence-Based Practice in Healthcare
On completion of the module, students should be able to apply the basic concepts of research; perform information search and data collection; and conduct a brief literature review of article on the relevant area of research.

Chronic Disease Management
On completion of the module, students should be able to apply the basic concepts and principles of chronic disease management model to ensure the delivery of safe, holistic and quality care to patients with common chronic diseases such as diabetes mellitus and the application of health education, case management and use of integrated care model.

Electives (General)
As reflected on pages 302-304.

Life Skills Modules
As reflected on page 304.
**NITEC IN OPTICIANRY**

**COURSE SYNOPSIS**

On completion of the course, students should be able to

- Take and record clients’ measurements and specifications required for optical aids.
- Assist clients in selecting frames to co-ordinate with the style, colour, facial and eye measurements, and optical prescription.
- Recommend specific lenses, lens coatings and frames to suit clients’ needs.
- Perform sales of optical products such as spectacles, sunglasses and other eye related goods.
- Prepare work orders and perform edging of lenses.
- Adjust eyewear to fit clients.
- Maintain records of customer prescription, work orders and payments.
- Perform administrative duties such as tracking inventory, sales and simple bookkeeping.
- Perform refraction for clients according to current Optometrists & Opticians Board (OOB) guidelines.

**JOB OPPORTUNITIES**

Nitec in Opticianry graduates are employed in variety of settings such as independent or joint practice, hospitals, eye care centres, optical laboratories or optical retail stores. Some of the job titles held by graduates include Optician, Dispensing Optician and Dispensing and Refraction Optician.

**CERTIFICATION**

Credits required for certification:

<table>
<thead>
<tr>
<th></th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Core Modules</td>
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<td>Life Skills Modules</td>
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<td>Elective Modules</td>
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**COURSE STRUCTURE**

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<tr>
<th>Module Title</th>
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<tr>
<td><strong>CORE MODULES</strong></td>
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<tr>
<td>Basic Optics</td>
<td>8</td>
</tr>
<tr>
<td>Basic Ocular Anatomy and Instrumentation</td>
<td>7</td>
</tr>
<tr>
<td>Ophthalmic Laboratory Processing I</td>
<td>7</td>
</tr>
<tr>
<td>Ophthalmic Dispensing</td>
<td>7</td>
</tr>
<tr>
<td>Ophthalmic Laboratory Processing II</td>
<td>8</td>
</tr>
<tr>
<td>Subjective Refraction</td>
<td>9</td>
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<tr>
<td>Industry Attachment</td>
<td>8</td>
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<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
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<tr>
<td>Physiological Optics</td>
<td>4</td>
</tr>
<tr>
<td>Eye Care and Retail Management</td>
<td>4</td>
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<tr>
<td><strong>ELECTIVES (GENERAL)</strong></td>
<td></td>
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<tr>
<td>Refer to pages 302-304</td>
<td></td>
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<tr>
<td><strong>LIFE SKILLS MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to page 304</td>
<td></td>
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</tbody>
</table>

*Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.*
MODULE OBJECTIVES

Core Modules

Basic Optics
On completion of the module, students should be able to assess and evaluate patients’ ophthalmic condition with various diagnostic tests and procedures.

Basic Ocular Anatomy and Instrumentation
On completion of the module, students should be able to describe the anatomical features of the eyes and perform basic ocular checks including visual acuity, and colour vision checks and measuring of spectacle power.

Ophthalmic Laboratory Processing I
On completion of the module, students should be able to carry out basic activities relating to pattern making and edging of optical lenses.

Ophthalmic Dispensing
On completion of the module, students should be able to measure major placement points required for eye glasses and perform spectacle adjustments and fittings of frames for clients.

Ophthalmic Laboratory Processing II
On completion of the module, students should be able to perform frame and frameless edging, colour tinting and mounting of lenses, and verify the specifications of the finished optical products.

Subjective Refraction
On completion of the module, students should be able to perform visual acuity test, spherical power check, astigmatism test, binocular balancing and near addition check, as well as evaluate the different refractive conditions of patients based on the results obtained.

Industry Attachment
This module provides opportunity for students to apply the concepts and skills acquired during institutional training as well to gain hands-on practical training in a real work environment in areas pertaining to fabrication and dispensing of optical lenses and frames, retail and customer service.

Electives (Course Specific)

Physiological Optics
On completion of the module, students should be able to perform contrast sensitivity experiments and apply the concept of visual and colour perceptions pertaining to relevant ocular checks.

Eye Care and Retail Management
On completion of the module, students should be able to apply the appropriate concepts and skills in the management of an optical outlet and communicate effectively with customers in providing quality customer service.

Electives (General)
As reflected on pages 302-304.

Life Skills Modules
As reflected on page 304.
**HIGHER NITEC IN ACCOUNTING (2 YEARS)**

**COURSE SYNOPSIS**

On completion of the course, students should be able to

- Handle receivables/payables.
- Maintain inventory records.
- Maintain Property, Plant & Equipment (PPE) / Capital Expenditure (CE) register.
- Prepare financial accounting reporting activities.
- Prepare corporate accounting reporting activities.
- Prepare cost statement.

**JOB OPPORTUNITIES**

Higher Nitec in Accounting graduates are employed by government agencies, statutory boards and private sector companies. Some job titles held are Accounts Assistant, Accounts Associate and Finance Assistant. Graduates can advance in their careers once relevant experience and higher-level accounting skills are acquired. Positions include Accounts Executive or Senior Accounts Executive.

**CERTIFICATION**

Credits required for certification:

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
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<td>Specialisation Modules</td>
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<td>Life Skills Modules</td>
<td>9</td>
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<tr>
<td>Cross Disciplinary Core Modules</td>
<td>6</td>
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<tr>
<td>Electives</td>
<td>6</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>68</strong></td>
</tr>
</tbody>
</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Business Ethics
On completion of the module, students should be able to adopt the fundamental ethics and standards of behaviour expected of an accounting professional.

Digitalisation in Business
On completion of the module, students will be able to use digital technologies to transform the way businesses bring together customers, data and processes. Students should be able to analyse multiple sources of data to improve organisation's processes and achieve strategic objectives through data-driven decision-making concepts. Students should understand how companies utilize indicative trends and patterns in Customer Relationship Management (CRM) systems, so as to better understand customer behaviour and anticipate customer needs/wants to support business decisions.

Fundamentals of Business Operations
On completion of this module, students should be able to support business operations by recording business transactions, prepare ledgers and final accounts, compute employee payroll and prepare telegraphic transfers and documents to support international trade.

Principles of Financial Accounting I
On completion of the module, students should be able to apply the knowledge of accounting theories and relate to business scenarios, and record business transactions.

Principles of Financial Accounting II
On completion of the module, students should be able to determine the value of stock, prepare Trial Balance, Bank Reconciliation, Statement of Comprehensive Income and Statement of Financial Position.

Personal Taxation
On completion of the module, students should be able to gain an overview of the Singapore income tax system and its tax administration and be able to prepare computations of tax liability for resident individuals. This module covers employment income and other sources of income, types of deductions and personal reliefs.

Business Finance
On completion of the module, students should be able to prepare Cash Budget, Cash Flow Statement and Capital Expenditure and Operating Expenditure List for a business and propose business finance options in a business.

Specialisation Modules

Costing Basics
On completion of the module, students should be able to apply basic costing concepts to ascertain costs associated with the production of goods.

Intermediate Financial Accounting I
On completion of the module, students should be able to maintain the fixed asset register, adjust entries to account receivables and prepare control accounts.

Intermediate Financial Accounting II
On completion of the module, students should be able to correct errors, prepare balance day adjustments and adjusted final accounts.

Company Taxation & Goods & Services Tax
On completion of the module, students should be able to prepare tax computations of tax liability for resident companies in Singapore and Goods and Services Tax (GST) returns for businesses. This module covers taxability of income, types of deductions and tax allowances available to reduce the chargeable income of a company.

Advanced Financial Accounting
On completion of the module, students should be able to prepare financial statements for partnership, cash budget and financial statements for limited companies.

Accounting Software Application
On completion of the module, students should be able to an overview of traditional and cloud accounting software. Students should be able to navigate accounting functions within the software by integrating their accounting knowledge with the use of the accounting software.

Industry Attachment 2
On completion of the 6-months internship module, students should be able to apply the skills and knowledge acquired to take on a range of job scopes at the company.
Cross Disciplinary Core Modules

Design Thinking for Business Services
On completion of the module, students should be able to develop innovative solutions in a business environment via transdisciplinary thinking approach that meets stakeholders’ needs.

Robotic Process Automation for Business
On completion of the module, students should be able to appreciate the applications of Robotic Process Automation (RPA) and be equipped with RPA skills to automate repetitive business processes and operations.

Electives

Customer Experience Design
On completion of the module, students should be able to appreciate and understand how customers think, behave, share and consume products/services from a customer journey perspective. This in turn will help students better understand how they can design better customer experiences to increase customer loyalty and generate more revenue.

Effective Business Networking
On completion of the module, students should be able to manage their professional image and build effective relationships with others.

Financial Accounting ERP Application
On completion of the module, students should be able to interpret business transactions, analyse and review financial accounting records and prepare financial statements within a computerised Enterprise Resource Planning system.

Infographics for Presentation & Marketing
On completion of the module, students should be able to communicate their presentation information more effectively through colours, visuals and infographics.

Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN BEAUTY & WELLNESS MANAGEMENT

COURSE SYNOPSIS

On completion of the course, students should be able to

- Conduct client consultation.
- Provide customer service.
- Provide skincare treatment.
- Provide makeup service.
- Provide nail service.
- Provide spa manicure and pedicure treatment.
- Provide electrotherapy treatment.
- Provide body treatment.
- Blend essential oils.
- Handle daily operation of a beauty/wellness establishment.
- Promote products and services at salon and on social media platforms.

JOB OPPORTUNITIES

Higher Nitec in Beauty & Wellness Management graduates are employed by beauty and wellness establishments. Some of the job titles held by graduates include Beauty Therapist, Nail Technician, Spa Therapist, Beauty & Wellness Consultant and Beauty Supervisor.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Module Type</th>
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<tr>
<td>Core Modules</td>
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COURSE STRUCTURE

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<tr>
<td><strong>CORE MODULES</strong></td>
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<tr>
<td>Salon Operation and Procedure</td>
<td>4</td>
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<tr>
<td>Grooming and Salon Etiquette</td>
<td>3</td>
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<tr>
<td>Makeup Artistry</td>
<td>4</td>
</tr>
<tr>
<td>Hand and Foot Treatments</td>
<td>4</td>
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<tr>
<td>Customer Service and Sales</td>
<td>4</td>
</tr>
<tr>
<td>Aesthetic Treatment</td>
<td>4</td>
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<tr>
<td>Nail Enhancement</td>
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<tr>
<td>Diet and Nutrition</td>
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<td>Lifestyle and Wellness</td>
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<tr>
<td>Social Media Marketing and Salon Management</td>
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<tr>
<td>Advanced Makeup</td>
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<tr>
<td>Essential Oil Studies</td>
<td>4</td>
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<tr>
<td>Facial Electrotherapy</td>
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<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
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<tr>
<td>Body Electrotherapy</td>
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<td>Swedish Therapy</td>
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<td>Foot Reflexology</td>
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<td>Hot Stone Therapy</td>
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<tr>
<td>Deep Tissue Therapy</td>
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<td>Spa Service</td>
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<td>Eyelash Extension</td>
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<td>Bridal Hairstyling</td>
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<td>Introduction to Clinical Aesthetics</td>
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<td><strong>LIFE SKILLS MODULES</strong></td>
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<td>Refer to page 304</td>
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</tbody>
</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
**CORE MODULES**

**Salon Operation and Procedure**
On completion of the module, students should be able to communicate with clients, and handle the daily operation of a salon or wellness centre.

**Grooming and Salon Etiquette**
On completion of the module, students should be able to project a professional image and apply etiquette in a salon or wellness centre.

**Makeup Artistry**
On completion of the module, students should be able to provide day, evening, bridal and camouflage makeup.

**Hand and Foot Treatments**
On completion of the module, students should be able to provide hand and foot massage, spa manicure and pedicure treatments, as well as roller waxing treatment.

**Customer Service and Sales**
On completion of the module, students should be able to cultivate rapport with customer, manage customer’s needs, provide service recovery, and to promote products and services to customer.

**Aesthetic Treatment**
On completion of the module, students should be able to provide facial treatment and massage, eyebrow shaping, and waxing for hair removal.

**Nail Enhancement**
On completion of the module, students should be able to provide nail art service and extension, as well as maintain and repair artificial nail extension.

**Diet and Nutrition**
On completion of the module, students should be able to conduct client consultation and recommend healthy diet programme.

**Lifestyle and Wellness**
On completion of the module, students should be able to conduct client consultation and recommend wellness programme.

**ADVANCED MODULES**

**Social Media Marketing and Salon Management**
On completion of the module, students should be able to prepare marketing plan, execute social media marketing and supervise daily salon operation.

**Advanced Makeup**
On completion of the module, students should be able to provide photographic, creative and special effect makeup.

**Essential Oil Studies**
On completion of the module, students should be able to blend essential oils and provide aromatherapy facial treatment.

**Facial Electrotherapy**
On completion of the module, students should be able to provide facial electrotherapy for deep cleaning, skin tightening and lifting treatments.

**Industry Attachment**
Students will go on a 3-month industry attachment at a beauty or wellness establishment to gain hands-on training in a range of beauty and wellness services.

**Electives (Course Specific)**

**Body Electrotherapy**
On completion of the module, students should be able to provide electrotherapy treatments for body toning and firming, slimming and hair removal.

**Swedish Therapy**
On completion of the module, students should be able to provide Swedish body treatments using a variety of classical massage movements.

**Foot Reflexology**
On completion of the module, students should be able to treat reflex points and areas in the feet to improve circulation and induce relaxation.

**Hot Stone Therapy**
On completion of the module, students should be able to provide hot stone body treatment using a combination of classical massage movements and heated stones.

**Deep Tissue Therapy**
On completion of the module, students should be able to provide deep tissue body treatment using firm pressure and slow strokes at targeted points to ease chronic aches and pains.
Spa Service
On completion of the module, students should be able to provide hydro and thermal spa treatments, as well as body scrub and wrap treatment.

Eyelash Extension
On completion of the module, students should be able to provide eyelash extension as a beauty enhancement service.

Bridal Hairstyling
On completion of the module, students should be able to provide simple bridal hairstyling and hair extension to complement bridal makeup service.

Introduction to Clinical Aesthetics
On completion of the module, students should be able to provide therapist-grade microdermabrasion and cosmetic treatment.

Electives (General)
As reflected on pages 300-301.

Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN EARLY CHILDHOOD EDUCATION

COURSE SYNOPSIS

On completion of the course, students should be able to

- Plan programmes.
- Assist in conducting lessons.
- Assist children in daily activities.
- Manage safety, health and nutrition of children.
- Handle administrative work.
- Pursue personal growth and professional development.
- Handle workplace communication.
- Process business transactions and reports using information technology tools.

The Higher Nitec in Early Childhood Education fulfils the professional qualifications of Level 1 category of teacher.

JOB OPPORTUNITIES

Higher Nitec in Early Childhood Education graduates are employed by childcare centres and kindergartens. Some of the job titles held by graduates include Infant/Toddler Educarer, Beginning Educarer.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Core Modules</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Skills Modules</td>
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</tr>
<tr>
<td>Elective Modules</td>
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</tr>
<tr>
<td>Total</td>
<td>65</td>
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</tbody>
</table>

COURSE STRUCTURE

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Business Writing &amp; Presentation</td>
<td>4</td>
</tr>
<tr>
<td>Elementary Business Analytics &amp; Cyber-security</td>
<td>4</td>
</tr>
<tr>
<td>Early Child Development</td>
<td>6</td>
</tr>
<tr>
<td>Principles and Practices of Preschool Education</td>
<td>6</td>
</tr>
<tr>
<td>Learning Environments</td>
<td>5</td>
</tr>
<tr>
<td>The Communication Curriculum</td>
<td>5</td>
</tr>
<tr>
<td>The Discovery Curriculum</td>
<td>7</td>
</tr>
<tr>
<td>The Aesthetic Curriculum</td>
<td>5</td>
</tr>
<tr>
<td>Industry Attachment</td>
<td>8</td>
</tr>
</tbody>
</table>

**ELECTIVES (COURSE SPECIFIC)**

Planning and Organising Children’s Events and Functions                        3

**ELECTIVES (INTER-DISCIPLINARY)**

Entrepreneurship Essentials                                                   3
Cabin Services                                                                3
Digital Storytelling                                                          3
Cross Cultural Intelligence at the Workplace                                  3

**ELECTIVES (GENERAL)**

Refer to pages 300-301

**LIFE SKILLS MODULES**

Refer to page 304

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.

The Higher Nitec in Early Childhood Education certification will be awarded by the National Institute of Early Childhood Development (NIEC) in collaboration with the Institute of Technical Education.
SCHOOL OF BUSINESS & SERVICES

MODULE OBJECTIVES

Core Modules

Business Writing & Presentation
On completion of the module, students should be able to apply business writing and presentation skills in a variety of business contexts.

Elementary Business Analytics & Cyber-security
On completion of the module, students should be able to analyse multiple sources of data to improve organisation’s processes and achieve strategic objectives through data-driven decision-making concepts and theories. Students will also gain awareness on the importance of data confidentiality and data security.

Early Child Development
On completion of the module, students should be able to understand how children learn and develop in their early years, with a focus on the inter-related stages of early development in young children, especially in relation to children’s play behaviour.

Principles and Practices of Preschool Education
On completion of the module, students should be able to understand the principles of child care and development; be aware of health and safety features; learn to build relationship with children, their parents, families, and others concerned with the education, care and welfare of the child.

Learning Environments
On completion of the module, students should be able to plan for exploring, discovering, and learning in a variety of settings; create spaces for learning; provide challenges for learning and balance the needs and interests of children with learning outcomes.

The Communication Curriculum
On completion of the module, students should be able to learn the numerous ways of developing and providing for the language and communication curriculum in childcare settings as well as explore the use of drama and mime in the provision for personal, social and emotional development.

The Discovery Curriculum
On completion of the module, students should be able to learn the numerous ways of developing and providing for the numeracy, natural science and environmental awareness curriculum in childcare settings with an additional focus on physical and health development and the provision for indoor and outdoor play.

The Aesthetic Curriculum
On completion of the module, students should be able to develop young children’s representational skills in a variety of forms through art and craft, dance, music, and movement.

Industry Attachment
Students are provided with the opportunity to work with childcare centres and kindergartens to gain practical ‘hands-on’ experience specifically designed to relate and extend participants’ theoretical knowledge acquired in the course.

Electives (Course Specific)

Planning and Organising Children’s Events and Functions
On completion of the module, students should be able to acquire an understanding of what the common events in a preschool environment are, to plan, organise and handle logistic arrangements for a children’s event, and to conduct a post event evaluation.

Electives (Inter-disciplinary)

Entrepreneurship Essentials
On completion of the module, students should be able to source new information from multiple sources, brainstorm ideas to find novel approaches to draft out a business plan through identifying business opportunities and applying marketing mix strategies with sound financial analysis.

Cabin Services
On completion of the module, students should be able to provide in-flight service, perform up-sell and cross sell of in-flight products and improve service procedures so as to ensure a safe and pleasant experience for passengers.

Digital Storytelling
On completion of the module, students should be able to create various Electronic Direct Mailers (EDMs) to sell a product or service with an associated story tagline.
Cross Cultural Intelligence at the Workplace
On completion of the module, students should be able to apply and adapt cross cultural knowledge at workplace.

Electives (General)
As reflected on pages 300-301.

Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN EVENT MANAGEMENT

COURSE SYNOPSIS

On completion of the course, students should be able to

- Coordinate event logistics.
- Manage projects and work flows.
- Organise events.
- Handle sales and marketing.
- Provide customer service support.
- Provide administrative and operational support.

JOB OPPORTUNITIES

Higher Nitec in Event Management graduates are employed as event coordinators in Professional Conference Organisers (PCOs), Professional Exhibition Organisers (PEOs), Destination Management Companies (DMCs), venue operators and hotels as well as other private and public sector organisations and associations responsible for organising and managing seminars, meetings and conferences. Some of the job titles held by graduates may include Events Coordinator, Project Coordinator and Conference Organiser.

There are opportunities for career advancement to supervisory positions and beyond. Events Coordinators with work experience and good performance may be promoted to supervisory positions, such as Project Manager, Events Manager as well as Sales and Marketing Manager.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
<td>51</td>
</tr>
<tr>
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</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>66</strong></td>
</tr>
</tbody>
</table>

Module Title | Credits |
---|---|
**CORE MODULES**
Business Writing & Presentation | 4 |
Customer Relationship Management | 5 |
Digital Commerce & Marketing | 5 |
Elementary Business Analytics & Cyber-security | 4 |
Event Planning & Management | 5 |
Event Business Environment | 5 |
Facilities and Venue Management | 5 |
Meetings, Incentives, Conventions & Exhibitions | 5 |
Event Sales & Sponsorship | 5 |
Industry Attachment | 8 |

**ELECTIVES (COURSE SPECIFIC)**
Audio Visual Operations | 3 |
Country Club Management Operations | 3 |

**ELECTIVES (INTER-DISCIPLINARY)**
Entrepreneurship Essentials | 3 |
Cabin Services | 3 |
Digital Storytelling | 3 |
Principles of International Commerce | 4 |
Business Statistics | 3 |
Cross Cultural Intelligence at the Workplace | 3 |

**ELECTIVES (GENERAL)**
Refer to pages 300-301

**LIFE SKILLS MODULES**
Refer to page 304

*Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.*
MODULE OBJECTIVES

Core Modules

Business Writing & Presentation
On completion of the module, students should be able to apply business writing and presentation skills in a variety of business contexts.

Customer Relationship Management
On completion of the module, students should be able to recognise customer behaviour to build positive customer experience, utilise indicative trends and patterns in Customer Relationship Management (CRM) system to support business decision.

Digital Commerce & Marketing
On completion of the module, students should be able to perform market research and plan, execute and evaluate a digital marketing strategy.

Elementary Business Analytics & Cyber-security
On completion of the module, students should be able to analyse multiple sources of data to improve organisation's processes and achieve strategic objectives through data-driven decision-making concepts and theories. Students will also gain awareness on the importance of data confidentiality and data security.

Event Planning & Management
On completion of the module, students should be able to prepare an event concept, perform detailed planning, handle event set-up, manage onsite activities and handle post-event activities.

Event Business Environment
On completion of the module, students should be able to gain insights into future industry transformation roadmaps and the environmental factors impacting business trends and models, and explore opportunities for a fulfilling career.

Facilities and Venue Management
On completion of the module, students should be able to select event venue, plan and manage event venue facilities, maintain inventory and handle loan of equipment.

Meetings, Incentives, Conventions & Exhibitions
On completion of the module, students should be able to differentiate the types of MICE events and their features and purposes, plan and develop event programme, prepare budget, coordinate MICE marketing activities and logistics, develop risk management plans and handle post-MICE event activities.

Event Sales & Sponsorship
On completion of the module, students should be able to effectively utilise strategies and techniques to assess and analyse client’s needs and motivations, negotiate and propose value driven solutions to generate revenue and garner sponsorship for events.

Industry Attachment
Students will go on internship at organisations that provide authentic practical training in performing event management tasks.

Electives (Course Specific)

Audio Visual Operations
On completion of the module, students should be able to develop the practical skills in managing audio visual equipment operations in organisation of events.

Country Club Management Operations
On completion of the module, students should be able to acquire the skills and knowledge in country/golf club management and operations.

Electives (Inter-disciplinary)

Entrepreneurship Essentials
On completion of the module, students should be able to source new information from multiple sources, brainstorm ideas to find novel approaches to draft out a business plan through identifying business opportunities and applying marketing mix strategies with sound financial analysis.

Cabin Services
On completion of the module, students should be able to provide in-flight service, perform up-sell and cross sell of in-flight products and improve service procedures so as to ensure a safe and pleasant experience for passengers.

Digital Storytelling
On completion of the module, students should be able to create various Electronic Direct Mailers (EDMs) to sell a product or service with an associated story tagline.
Principles of International Commerce
On completion of the module, students should be able to apply the basic knowledge of importing goods from overseas with consideration of local requirements.

Business Statistics
On completion of the module, students should be able to compute and present statistical data for use in business. The training covers collection, organisation and presentation of statistical data, measures of central tendency, dispersion and normal distribution, index numbers, time series analysis, regression and correlation analysis.

Cross Cultural Intelligence at the Workplace
On completion of the module, students should be able to apply and adapt cross cultural knowledge at workplace.

Electives (General)
As reflected on pages 300-301.

Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN FINANCIAL SERVICES

COURSE SYNOPSIS

On completion of the course, students should be able to

• Perform frontline customer service using digital channels.
• Provide after-sales care and advice.
• Create awareness of product and service.
• Provide efficient and quality customer service.
• Perform digital marketing activity such as updating websites and social media accounts.
• Track status of customer applications for products and services.

JOB OPPORTUNITIES

Higher Nitec in Financial Services graduates are employed as Customer Service Associate in commercial banks, insurance companies and other financial institutions. There are opportunities for career advancement to supervisory positions and beyond.

CERTIFICATION

Credits required for certification:

| Core Modules | 50 |
| Life Skills Modules | 9 |
| Elective Modules | 6 |
| **Total** | **65** |

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Business Writing & Presentation
On completion of the module, students should be able to apply business writing and presentation skills in a variety of business contexts.

Digital Commerce & Marketing
On completion of the module, students should be able to perform market research and plan, execute and evaluate a digital marketing strategy.

Elementary Business Analytics & Cyber-security
On completion of the module, students should be able to analyse multiple sources of data to improve organisation’s processes and achieve strategic objectives through data-driven decision-making concepts and theories. Students will also gain awareness on the importance of data confidentiality and data security.

Digitalisation & Financial Services
On completion of the module, students should be able to relate effects of digitalisation, industry transformation trends and financial policies on financial services business operations.

Investments and Risk Management
On completion of the module, students should be able to acquire knowledge on types of investment instruments used in personal financial planning. In addition, they will be able to handle enquiry, provide back-room administrative support to facilitate investment and bancassurance transactions, as well as to provide operational support to Relationship Managers.

Financial Products & Services
On completion of the module, students should be able to acquire knowledge on the business functions of consumer bank and corporate finance services providers, and serving customers with a wide range of e-services on financial products and services.

Principles of Insurance
On completion of the module, students will be able to apply knowledge on insurance market functions, and explain the principles of insurance and the claim process for general insurance.

Personal General Insurance
On completion of the module, students will be able to acquire knowledge on personal general insurance products and provide operational support in handling applications and processing claims.

Commercial General Insurance
On completion of the module, students will be able to acquire knowledge on commercial general insurance products and provide operational support in handling underwriting and claims processes.

Industry Attachment
Students will undergo an internship with organisations and apply the skills and knowledge learnt in the financial services course.

Electives (Course Specific)

Customer Relationship Management Applications
On completion of the module, students should be able to have a basic understanding of the concepts used in customer service relationship. They are also trained to provide pre- and after-sales support functions, target marketing to attract and retain customer base using customer relationship management software.

FinTech Applications
On completion of the module, students will have a deeper appreciation of the applications of financial technology (Fintech) and its impact on the banking and insurance sectors. In particular, students will be equipped with practical skills to create a chatbot user interface to simplify and enhance user experience.

Electives (Inter-disciplinary)

Entrepreneurship Essentials
On completion of the module, students should be able to source new information from multiple sources, brainstorm ideas to find novel approaches to draft out a business plan through identifying business opportunities and applying marketing mix strategies with sound financial analysis.

Cabin Services
On completion of the module, students should be able to provide in-flight service, perform up-sell and cross sell of in-flight products and improve service procedures so as to ensure a safe and pleasant experience for passengers.
Digital Storytelling
On completion of the module, students should be able to create various Electronic Direct Mailers (EDMs) to sell a product or service with an associated story tagline.

Cross Cultural Intelligence at the Workplace
On completion of the module, students should be able to apply and adapt cross cultural knowledge at workplace.

Electives (General)
As reflected on pages 300-301.

Life Skills Modules
As reflected on page 304.
**COURSE SYNOPSIS**

On completion of the course, students should be able to
- Handle talent acquisition and related activities.
- Coordinate onboarding and offboarding activities.
- Handle compensation and benefits administration.
- Organise employee learning and well-being programmes.
- Provide workplace administrative support.

**JOB OPPORTUNITIES**

*Higher Nitec* in Human Resource & Administration graduates are equipped with administrative and business knowledge to support a range of human resource functions in an establishment. Some of the job titles held by graduates include Human Resource Associate, HR Administrative Assistant, HR Coordinator/Officer, Payroll Assistant, Recruitment Assistant and Corporate Support Associate. Career advancement prospects will improve as graduates acquire experience and upgrade skills and knowledge with higher level courses.

**CERTIFICATION**

Credits required for certification:

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
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<tr>
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<tr>
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</tr>
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<td><strong>Total</strong></td>
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</tr>
</tbody>
</table>

*Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.*

**COURSE STRUCTURE**

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
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<tr>
<td>Business Writing &amp; Presentation</td>
<td>4</td>
</tr>
<tr>
<td>Customer Relationship Management</td>
<td>5</td>
</tr>
<tr>
<td>Digital Commerce &amp; Marketing</td>
<td>5</td>
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<tr>
<td>Elementary Business Analytics &amp; Cyber-security</td>
<td>4</td>
</tr>
<tr>
<td>Human Resource Practices in Business</td>
<td>6</td>
</tr>
<tr>
<td>Talent Acquisition &amp; Rewards</td>
<td>7</td>
</tr>
<tr>
<td>Learning &amp; Talent Development</td>
<td>6</td>
</tr>
<tr>
<td>Employee Engagement &amp; Retention</td>
<td>5</td>
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<tr>
<td>Industry Attachment</td>
<td>8</td>
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<tr>
<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
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<tr>
<td>Cross Cultural Intelligence at the Workplace</td>
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<tr>
<td>Talent Management in a Digital Age</td>
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<tr>
<td>Facilitation Essentials for Human Resource Practitioner</td>
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<tr>
<td><strong>ELECTIVES (INTER-DISCIPLINARY)</strong></td>
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</tr>
<tr>
<td>Business Statistics</td>
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<tr>
<td>Entrepreneurship Essentials</td>
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<tr>
<td>Cabin Services</td>
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<tr>
<td>Digital Storytelling</td>
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<tr>
<td>Digital Marketing</td>
<td>3</td>
</tr>
<tr>
<td><strong>ELECTIVES (GENERAL)</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to pages 300-301</td>
<td></td>
</tr>
</tbody>
</table>

**LIFE SKILLS MODULES**

Refer to page 304
 MODULE OBJECTIVES

Core Modules

Business Writing & Presentation
On completion of the module, students should be able to apply business writing and presentation skills in a variety of business contexts.

Customer Relationship Management
On completion of the module, students should be able to recognise customer behaviour to build positive customer experience, utilise indicative trends and patterns in Customer Relationship Management (CRM) system to support business decision.

Digital Commerce & Marketing
On completion of the module, students should be able to perform market research and plan, execute and evaluate a digital marketing strategy.

Elementary Business Analytics & Cyber-security
On completion of the module, students should be able to analyse multiple sources of data to improve organisation’s processes and achieve strategic objectives through data-driven decision-making concepts and theories. Students will also gain awareness on the importance of data confidentiality and data security.

Human Resource Practices in Business
On completion of the module, students should be able to apply and execute HR practices with the consideration of current industry trends, business roles and functions.

Talent Acquisition & Rewards
On completion of the module, students should be able to handle recruitment and onboarding activity, employee payroll and claims reimbursements.

Learning & Talent Development
On completion of the module, students should be able to provide support in developing employees’ capabilities, skills and knowledge to meet both business and personal goals.

Employee Engagement & Retention
On completion of the module, students should be able to attend to employee query and coordinate a range of staff-related programmes. Students should also be able to handle a range of associated administrative tasks, including supporting the exit or re-employment process.

Industry Attachment
On completion of the module, students should be able to apply the skills and knowledge acquired to take on a range of job scope at the workplace.

Electives (Course Specific)

Cross Cultural Intelligence at the Workplace
On completion of the module, students should be able to apply and adapt cross cultural knowledge at workplace.

Talent Management in a Digital Age
On completion of the module, students should be able to provide support in an organisation’s performance review cycle.

Facilitation Essentials for Human Resource Practitioner
On completion of the module, students should be able to support facilitation sessions in HR settings.

Electives (Inter-disciplinary)

Business Statistics
On completion of the module, students should be able to compute and present statistical data for use in business. The training covers collection, organisation and presentation of statistical data, measures of central tendency, dispersion and normal distribution, index numbers, time series analysis, regression and correlation analysis.

Entrepreneurship Essentials
On completion of the module, students should be able to source new information from multiple sources, brainstorm ideas to find novel approaches to draft out a business plan through identifying business opportunities and applying marketing mix strategies with sound financial analysis.

Cabin Services
On completion of the module, students should be able to provide in-flight service, perform up-sell and cross sell of in-flight products and improve service procedures to ensure a safe and pleasant experience for passengers.

Digital Storytelling
On completion of the module, students should be able to create various Electronic Direct Mailers (EDMs) to sell a product or service with an associated story tagline.
Digital Marketing
On completion of the module, students should be able to have a sense of marketing on the digital space and transverse the digital arena to bring products and/or ideas into the digital space using commercially available digital advertising tools.

Electives (General)
As reflected on pages 300-301.

Life Skills Modules
As reflected on page 304.
Higher Nitec in International Logistics

Course Synopsis

On completion of the course, students should be able to

- Perform warehousing and distribution activities.
- Perform freight forwarding activities.
- Arrange transportation of goods.
- Provide quality customer service.

This course provides students with the skills and knowledge in coordinating the movement of goods, both imports and exports. It covers concept of logistics, warehousing, freight and distribution techniques.

Job Opportunities

Higher Nitec in International Logistics graduates, equipped with knowledge and skills in integrated logistics management, support core business functions of organisations such as warehousing & storage, freight forwarding and logistics operations. Some occupational titles held by graduates include Logistics Coordinator/Assistant, Logistics Service Officer, Import/Export Assistant, Assistant Shipping Coordinator, Operational Executive, Warehouse Assistant, Inventory Assistant/Coordinator and Customer Service Executive. As graduates acquire experience and upgrade their skills and knowledge, their career advancement prospects will improve.

Certification

Credits required for certification:

<table>
<thead>
<tr>
<th>Core Modules</th>
<th>51</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Skills Modules</td>
<td>9</td>
</tr>
<tr>
<td>Elective Modules</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>66</td>
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</tbody>
</table>

Course Structure

Module Title  | Credits
--- | ---
**CORE MODULES**
Business Writing & Presentation | 4
Customer Relationship Management | 5
Digital Commerce & Marketing | 5
Elementary Business Analytics & Cyber-security | 4
Introduction to Business & Logistics | 5
Warehousing & Distribution | 5
Freight Forwarding | 5
Transport Logistics | 5
**ELECTIVES (COURSE SPECIFIC)**
Principles of Purchasing | 3
Material Handling Equipment | 3
**ELECTIVES (INTER-DISCIPLINARY)**
Business Statistics | 3
Entrepreneurship Essentials | 3
Cabin Services | 3
Digital Storytelling | 3
**ELECTIVES (GENERAL)**
Refer to pages 300-301

Life Skills Modules

Refer to page 304

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Business Writing & Presentation
On completion of the module, students should be able to apply business writing and presentation skills in a variety of business contexts.

Customer Relationship Management
On completion of the module, students should be able to recognise customer behaviour to build positive customer experience, utilise indicative trends and patterns in CRM systems to support business decision.

Digital Commerce & Marketing
On completion of the module, students should be able to perform market research and plan, execute and evaluate a digital marketing strategy.

Elementary Business Analytics & Cyber-security
On completion of the module, students should be able to analyse multiple sources of data to improve organisation’s processes and achieve strategic objectives through data-driven decision-making concepts and theories. Students will also gain awareness on the importance of data confidentiality and data security.

Introduction to Business & Logistics
On completion of the module, students will gain an overview of the general environment in which businesses operate, they will be able to relate the importance of logistics in business and the economy.

Warehousing & Distribution
On completion of the module, students should be able to perform various transactions and activities in a typical warehouse and distribution centre environment. Students will also be equipped with skills in inventory control & management, measurement of warehouse performance, Workplace Safety & Health Practices, risk assessment and security issues in warehouse and distribution centres.

Freight Forwarding
On completion of the module, students should be equipped with skills and knowledge to arrange transport of goods from one location to another in the most suitable and economical method. They should be able to complete the required documentation in compliance with national and international requirements.

Transport Logistics
On completion of the module, students should be equipped with basic skills and knowledge to select appropriate modes of transport and accompanying requirements for safe, timely transportation and border clearance and including multi-modal environment.

Material Planning & Inventory Management
On completion of the module, students should be equipped with skills and knowledge to maintain manual or computerised records of material and inventory plan. Students should be able to review the material plan, its schedules and related information from the records and to explain the various aspects of inventory control and management.

Industry Attachment
Students are provided with the opportunity to work in an actual business environment.

Electives (Course Specific)

Principles of Purchasing
On completion of the module, students should be able to understand the purchasing activities of a logistics company. The content includes principles of purchasing, purchase management process and purchasing planning and information.

Material Handling Equipment
On completion of the module, students should able to explain functional features and capability of a forklift truck, and safely operate the forklift truck in a work environment. The course also prepares the trainees to prepare for the Singapore Workforce Skills Qualification (WSQ) assessment in the Operate Forklift competency unit. Upon passing this assessment, the graduates will be able to legally operate a forklift truck.

Electives (Inter-disciplinary)

Business Statistics
On completion of the module, students should be able to compute and present statistical data for use in business. The training covers collection, organisation and presentation of statistical data, measures of central tendency, dispersion and normal distribution, index numbers, time series analysis, regression and correlation analysis.
Entrepreneurship Essentials
On completion of the module, students should be able to source new information from multiple sources, brainstorm ideas to find novel approaches to draft out a business plan through identifying business opportunities and applying marketing mix strategies with sound financial analysis.

Cabin Services
On completion of the module, students should be able to provide in-flight service, perform up-sell and cross sell of in-flight products and improve service procedures so as to ensure a safe and pleasant experience for passengers.

Digital Storytelling
On completion of the module, students should be able to create various Electronic Direct Mailers (EDMs) to sell a product or service with an associated story tagline.

Electives (General)
As reflected on pages 300-301.

Life Skills Modules
As reflected on page 304.
**HIGHER NITEC IN LEISURE & TRAVEL OPERATIONS**

**COURSE SYNOPSIS**

On completion of the course, students should be able to

- Promote and sell tourism products and services.
- Provide travel planning services.
- Make tour arrangements.
- Handle reservations and ticketing.
- Lead tours.
- Provide front-line services.
- Manage visitor programmes and memberships.
- Plan for events.
- Coordinate event logistics.

**JOB OPPORTUNITIES**

*Higher Nitec* in Leisure & Travel Operations graduates can be employed by clubs, resorts, attractions, travel agencies and other establishments in the leisure and travel sectors. Some of the job titles held by graduates include Guest Services Officer, Guest Services Assistant and Operations Assistant.

**CERTIFICATION**

Credits required for certification:

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
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**COURSE STRUCTURE**

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<thead>
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<th>Module Title</th>
<th>Credits</th>
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<tr>
<td><strong>CORE MODULES</strong></td>
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<tr>
<td>Customer Relationship Management</td>
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<tr>
<td>Introduction to Leisure &amp; Tourism</td>
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<tr>
<td>Tourism Service &amp; Communication</td>
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<tr>
<td>Elementary Business Analytics &amp; Cyber-security</td>
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<td>Digital Marketing for Tourism</td>
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<tr>
<td>Travel Planning &amp; Services</td>
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<td>Meetings, Conventions &amp; Exhibition Planning</td>
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<td>Sales &amp; Sponsorship</td>
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<td>Industry Attachment</td>
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<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
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<tr>
<td>Introduction to Amusement and Theme Park Operations</td>
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<tr>
<td><strong>ELECTIVES (INTER-DISCIPLINARY)</strong></td>
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<tr>
<td>Fundamentals of Customer Relationship Management</td>
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<td>Digital Storytelling</td>
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<td>Robotic Process Automation for Business</td>
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<td><strong>ELECTIVES (GENERAL)</strong></td>
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<td></td>
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<tr>
<td><strong>LIFE SKILLS MODULES</strong></td>
<td></td>
</tr>
<tr>
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<td></td>
</tr>
</tbody>
</table>

*Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.*
MODULE OBJECTIVES

Core Modules

Customer Relationship Management
On completion of the module, students should be able to recognise customer behaviour to build positive customer experience, utilise indicative trends and patterns in Customer Relationship Management (CRM) system to support business decision.

Introduction to Leisure & Tourism
On completion of the module, students should be able to provide an overview of the tourism industry, identify the economic, social and cultural impacts of tourism, establish the leisure preferences of travellers, and provide information on destinations and travel time.

Tourism Service & Communication
On completion of the module, students should be able to apply communication skills in speaking, listening, interpreting and responding face-to-face, over the telephone and in writing in a tourism setting, build rapport with customers, sell tourism products and services as well as handle service breakdown and recovery.

Elementary Business Analytics & Cyber-security
On completion of the module, students should be able to analyse multiple sources of data to improve organisation’s processes and achieve strategic objectives through data-driven decision-making concepts and theories. Students will also gain awareness on the importance of data confidentiality and data security.

Digital Marketing for Tourism
On completion of the module, students should be able to research the internal and external factors that impact tourism, profile a target market and carry out service digital marketing to promote a tourist destination.

Travel Planning & Services
On completion of the module, students should be able to prepare a tour proposal, draw up tour itineraries to cater to the needs of special interest tour groups, make travel and tour arrangements, and lead a tour group.

Meetings, Conventions & Exhibition Planning
On completion of the module, students should be able to plan for events, coordinate event logistics and services and manage event logistics throughout the event.

Sales & Sponsorship
On completion of the module, students should be able to apply techniques to generate sales and sponsorship leads, recommend a range of products and services, close prospects, and create repeat sales.

Industry Attachment
Students are provided with the opportunity to work in a leisure or travel setting for 6 months.

Electives (Course Specific)

Introduction to Amusement and Theme Park Operations
On completion of the module, students should be able to handle ticketing, ride operations, custodial and retail services at amusement and theme parks.

Electives (Inter-disciplinary)

Fundamentals of Customer Relationship Management
On completion of this module, students should be able to appreciate and carry out CRM effectively in a company’s operation.

Digital Storytelling
On completion of the module, students should be able to create various Electronic Direct Mailers (EDMs) to sell a product or service with an associated story tagline.

Robotic Process Automation for Business
On completion of the module, students should be able to appreciate the applications of Robotic Process Automation (RPA) and be equipped with RPA skills to automate repetitive business processes and operations.

Electives (General)
As reflected on pages 300-301.

Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN MARITIME BUSINESS

COURSE SYNOPSIS

On completion of the course, students should be able to

- Perform shipment coordination.
- Process shipping and trade documents.
- Process Customs Permits Declaration.
- Coordinate with customers, suppliers, forwarders etc.
- Suggest and instruct customers on shipping products and services, schedules, routes and rates.
- Respond to customer inquiries on shipping issues.

JOB OPPORTUNITIES

Higher Nitec in Maritime Business graduates are employed by companies involved in maritime business such as shipping and port operations, cargo operations and ship agency management services. Some of the job titles graduates of the course could apply for include Shipping Operations Assistant, Shipping Administrative Executive, and Assistant Supervisor. The maritime sector is a key sector in Singapore and globally. As graduates acquire experience and upgrade their skills and knowledge in their career advancement prospects will improve.

CERTIFICATION

Credits required for certification:

| Core Modules      | 52 |
| Life Skills Modules | 9  |
| Elective Modules  | 6  |
| **Total**         | **67** |

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
**MODULE OBJECTIVES**

**Core Modules**

**Business Writing & Presentation**
On completion of the module, students should be able to apply business writing and presentation skills in a variety of business contexts.

**Customer Relationship Management**
On completion of the module, students should be able to recognise customer behaviour to build positive customer experience, utilise indicative trends and patterns in Customer Relationship Management (CRM) system to support business decision.

**Digital Commerce & Marketing**
On completion of the module, students should be able to perform market research and plan, execute and evaluate a digital marketing strategy.

**Elementary Business Analytics & Cyber-security**
On completion of the module, students should be able to analyse multiple sources of data to improve organisation’s processes and achieve strategic objectives through data-driven decision-making concepts and theories. Students will also gain awareness on the importance of data confidentiality and data security.

**Ship Accounting**
On completion of the module, students should be able to apply ship accounting concepts, tools and methods to post accounting transactions, perform accounts closing, prepare monthly financial statements, perform risk assessment and evaluate financing options to aid organisation in client’s credit risk assessment.

**Introduction to Maritime Industry**
On completion of the module, students should have a foundational understanding of the maritime industry in terms of maritime geography, ships and cargo, maritime terminology, careers and challenges facing the industry.

**Shipping and Port Operations**
On completion of the module, students should be able to support key shipping and port operations activities. They would also be introduced to the concepts of maritime cargo transportation and equipped with an understanding of the trends and challenges facing the industry.

**Shipping Documentation**
On completion of the module, students should be able to identify and apply for the different types of documents related to cargo movement. Students would also be equipped with the skills and knowledge to assist customers in cargo shipment.

**Ship Agency and Operations**
On completion of the module, students should be able to support a ship manager/agent in the management of maritime commercial vessels. Students would also be equipped with the knowledge and skills to carry out ship agency functions relating to vessel operations, management, and cargo shipment.

**Industry Attachment**
Students are provided with opportunity to work in organizations in the shipping industry for around 6 months.

**Electives (Inter-disciplinary)**

**Business Statistics**
On completion of the module, students should be able to compute and present statistical data for use in business. The training covers collection, organisation and presentation of statistical data, measures of central tendency, dispersion and normal distribution, index numbers, time series analysis, regression and correlation analysis.

**Entrepreneurship Essentials**
On completion of the module, students should be able to source new information from multiple sources, brainstorm ideas to find novel approaches to draft out a business plan through identifying business opportunities and applying marketing mix strategies with sound financial analysis.

**Cabin Services**
On completion of the module, students should be able to provide in-flight service, perform up-sell and cross sell of in-flight products and improve service procedures so as to ensure a safe and pleasant experience for passengers.

**Digital Storytelling**
On completion of the module, students should be able to create various Electronic Direct Mailers (EDMs) to sell a product or service with an associated story tagline.

**Cross Cultural Intelligence at the Workplace**
On completion of the module, students should be able to apply and adapt cross cultural knowledge at workplace.
Electives (General)
As reflected on pages 300-301.

Life Skills Modules
As reflected on page 304.
**HIGHER NITEC IN PASSENGER SERVICES**

**COURSE SYNOPSIS**

On completion of the course, students should be able to

- Perform check-in services.
- Provide meet-and-greet services.
- Handle arrival and departure of passengers.
- Handle enquiries relating to passenger needs at terminals.
- Assist in crowd control.
- Assist in managing crisis.

**JOB OPPORTUNITIES**

*Higher Nitec* in Passenger Services graduates are employed by organizations which provide passenger services (primarily in the aviation and ferry/cruise industries). Some of the job titles held by graduates include Customer Service Agents, Passenger Services Agent, Passenger Services Officer and Operations Officers.

**CERTIFICATION**

Credits required for certification:

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<table>
<thead>
<tr>
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<tr>
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<td><strong>Total</strong></td>
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**COURSE STRUCTURE**

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<th>Module Title</th>
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<tr>
<td><strong>CORE MODULES</strong></td>
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<td>Customer Relationship Management</td>
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<td>Digital Commerce &amp; Marketing</td>
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<tr>
<td>Elementary Business Analytics &amp; Cyber-security</td>
<td>4</td>
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<tr>
<td>Business Grooming &amp; Etiquette</td>
<td>5</td>
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<tr>
<td>Travel Industry &amp; Geography</td>
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<tr>
<td>Passenger Handling Operations</td>
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<td>Transport Services</td>
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<td>Industry Attachment</td>
<td>8</td>
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<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
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<td>Cabin Services</td>
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<tr>
<td><strong>ELECTIVES (INTER-DISCIPLINARY)</strong></td>
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<tr>
<td>Country Club Management and Operations</td>
<td>3</td>
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<td>Entrepreneurship Essentials</td>
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<td>Digital Storytelling</td>
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<td>Cross Cultural Intelligence at the Workplace</td>
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<tr>
<td><strong>ELECTIVES (GENERAL)</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to pages 300-301</td>
<td></td>
</tr>
</tbody>
</table>

**LIFE SKILLS MODULES**

Refer to page 304

*Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.*
**MODULE OBJECTIVES**

**Core Modules**

**Business Writing & Presentation**
On completion of the module, students should be able to apply business writing and presentation skills in a variety of business contexts.

**Customer Relationship Management**
On completion of the module, students should be able to recognise customer behaviour to build positive customer experience, utilise indicative trends and patterns in Customer Relationship Management (CRM) system to support business decision.

**Digital Commerce & Marketing**
On completion of the module, students should be able to perform market research and plan, execute and evaluate a digital marketing strategy.

**Elementary Business Analytics & Cyber-security**
On completion of the module, students should be able to analyse multiple sources of data to improve organisation's processes and achieve strategic objectives through data-driven decision-making concepts and theories. Students will also gain awareness on the importance of data confidentiality and data security.

**Business Grooming & Etiquette**
On completion of the module, students should be able to project a professional image essential in a travel and customer service environment and maintain the various aspects of business etiquette.

**Travel Industry & Geography**
On completion of the module, students should have a broad overview of the travel industry, the profile of travellers, travel requirements, fare pricing and the international regulations that govern the travel industry. Students should be able to provide information on the travel destination and their environment, climate and culture as well as travel time.

**Passenger Handling Operations**
On completion of the module, students should be able to check in passengers and baggage, handle departure and arrival of passengers, provide meet-and-assist passengers and handle crisis.

**Transport Services**
On completion of the module, students should be able to handle enquires on air, sea and land transport services.

**Industry Attachment**
Students are provided with the opportunity to work in organizations such as aviation of ferry/cruise industries for 6 months.

**Electives (Course Specific)**

**Cabin Services**
On completion of the module, students should be able to provide in-flight service, perform up-sell and cross sell of in-flight products and improve service procedures so as to ensure a safe and pleasant experience for passengers.

**Electives (Inter-disciplinary)**

**Country Club Management and Operations**
On completion of the module, students should be able to assist in club operations including membership, food and beverage, golf, sports and recreation, social and entertainment and other administrative and/or supporting functions.

**Entrepreneurship Essentials**
On completion of the module, students should be able to source new information from multiple sources, brainstorm ideas to find novel approaches to draft out a business plan through identifying business opportunities and applying marketing mix strategies with sound financial analysis.

**Digital Storytelling**
On completion of the module, students should be able to create various Electronic Direct Mailers (EDMs) to sell a product or service with an associated story tagline.

**Cross Cultural Intelligence at the Workplace**
On completion of the module, students should be able to apply and adapt cross cultural knowledge at workplace.

**Electives (General)**
As reflected on pages 300-301.

**Life Skills Modules**
As reflected on page 304.
HIGHER NITEC IN RETAIL & ONLINE BUSINESS

COURSE SYNOPSIS

On completion of the course, students should be able to

- Provide customer service.
- Promote products and services.
- Arrange display of merchandise.
- Handle merchandise.
- Manage stock inventory.
- Assist in the buying process.
- Monitor sales data and sales of product range.
- Perform market research.
- Assist in analysing customer buying pattern.
- Assist in sales promotions and e-commerce activities.
- Assist in measuring the effectiveness of online and/or offline marketing campaigns.

JOB OPPORTUNITIES

Higher Nitec in Retail & Online Business graduates can be employed by retail establishments to do retail or e-commerce work. Some of the job titles held by graduates include Retail Sales Executive and e-Commerce Executive. There are excellent supervisory opportunities for career advancement to supervisory positions and beyond.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
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<td>Life Skills Modules</td>
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<td><strong>Total</strong></td>
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</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Business Writing & Presentation
On completion of the module, students should be able to apply business writing and presentation skills in a variety of business contexts.

Customer Relationship Management
On completion of the module, students should be able to recognise customer behaviour to build positive customer experience, utilise indicative trends and patterns in Customer Relationship Management (CRM) system to support business decision.

Elementary Business Analytics & Cyber-security
On completion of the module, students should be able to analyse multiple sources of data to improve organisation's processes and achieve strategic objectives through data-driven decision-making concepts and theories. Students will also gain awareness on the importance of data confidentiality and data security.

Retail Management
On completion of the module, students should have knowledge to support retail sales, understand good customer service, implement environmental sustainable retail practices on the shop floor, assist in manpower planning, provide effective staff coaching, supervise on movement of merchandise, monitor sales of product range, produce and analyse sales data.

Retail Merchandising
On completion of the module, students should have a good overview of the principles of retail merchandising. Students should be able to determine target market, maintain inventory and supplier databases, assist in obtaining quotations, following up with suppliers, compute various pricing and coordinate the display of goods.

Retail Promotion and Digital Marketing
On completion of the module, students should be able to conduct market research, collate customer buying information, identify market entry strategies, integrate different digital marketing channels into the overall marketing mix to implement e-commerce activities, monitor sales, promotions and coordinate for order processing.

Data Analytics
On completion of the module, students should be able to analyse and optimise website performance with the use of data analytics tools. Students will learn to address methods for managing and analysing large datasets in specific areas such as consumer behaviour and marketing campaign. Students will be able to develop basic data literacy and analytical mindsets that will assist in making recommendations for improvement to effectively reach specific segmented target markets.

Digital Media
On completion of the module, students should be able to obtain basic photography skills, create basic design, edit image and texture, composite publication layout to create effective branding and advertising campaigns, using media processing techniques.

Industry Attachment
Students are provided with the opportunity to work in a retail establishment for 3 months.

Electives (Course Specific)

Retail Supply Chain
On completion of the module, students should be able to assist in the planning of delivery schedule, coordinate delivery of inventory, and implement sustainable supply chain activities.

Electives (Inter-disciplinary)

Entrepreneurship Essentials
On completion of the module, students should be able to source new information from multiple sources, brainstorm ideas to find novel approaches to draft out a business plan through identifying business opportunities and applying marketing mix strategies with sound financial analysis.

Principles of International Commerce
On completion of the module, students should be able to apply the basic knowledge of importing goods from overseas with consideration of local requirements.

Cabin Services
On completion of the module, students should be able to provide in-flight service, perform up-sell and cross sell of in-flight products and improve service procedures so as to ensure a safe and pleasant experience for passengers.
Digital Storytelling
On completion of the module, students should be able to create various Electronic Direct Mailers (EDMs) to sell a product or service with an associated story tagline.

Cross Cultural Intelligence at the Workplace
On completion of the module, students should be able to apply and adapt cross cultural knowledge at workplace.

Talent Management in a Digital Age
On completion of the module, students should be able to provide support in an organisation’s performance review cycle.

Electives (General)
As reflected on pages 300-301.

Life Skills Modules
As reflected on page 304.
ON COMPLETION OF THE COURSE, STUDENTS SHOULD BE ABLE TO

- Use business solution tools to organise data for building profiles and service plans to improve customer experience.
- Consolidate data and identify trends to anticipate customer need and service improvement.
- Conduct mystery shopping and onsite observation for internal audit of service quality and enhancement.
- Maintain accurate, detailed and updated database for the customers.
- Perform administrative tasks (billing, logging and report generation).
- Provide quality customer service in handling enquiry and resolving multifaceted customer matters through omni-channels.

HIGHER NITEC IN SERVICE MANAGEMENT

COURSE SYNPESIS

On completion of the course, students should be able to

JOB OPPORTUNITIES

Higher Nitec in Service Management graduates are equipped with service mindset to deliver a memorable experience to customers including the usage of digital business solutions to engage and delight customers with diverse needs and expectations. Graduates are employed as customer support personnel in info-communication, hospitality, banking and finance, healthcare, transport, IT, retail and other corporate businesses. Some of the job titles held by graduates include Customer Experience Associate, Service Experience Associate, Client Experience Agent and Customer Care Associate.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Credits</th>
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<tr>
<td>Core Modules</td>
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<td>Elective Modules</td>
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<td>68</td>
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COURSE STRUCTURE

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<tr>
<th>Module Title</th>
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<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
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<tr>
<td>Business Writing &amp; Presentation</td>
<td>4</td>
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<tr>
<td>Customer Relationship Management</td>
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<tr>
<td>Digital Commerce &amp; Marketing</td>
<td>5</td>
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<tr>
<td>Elementary Business Analytics &amp; Cyber-security</td>
<td>4</td>
</tr>
<tr>
<td>Principles of Service Management</td>
<td>6</td>
</tr>
<tr>
<td>Event Operation &amp; Management</td>
<td>5</td>
</tr>
<tr>
<td>Integrated Customer Service Support</td>
<td>6</td>
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<tr>
<td>Service Innovation &amp; Design</td>
<td>5</td>
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<tr>
<td>Customer Insight for Service</td>
<td>5</td>
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<tr>
<td>Industry Attachment</td>
<td>8</td>
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<tr>
<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
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</tr>
<tr>
<td>Digital Storytelling</td>
<td>3</td>
</tr>
<tr>
<td>Fundamentals of Customer Relationship Management</td>
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</tr>
<tr>
<td>Introduction to Infocomm Service Support</td>
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<tr>
<td>Engaging Customers in the Digital Age</td>
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<tr>
<td>Principles of International Commerce</td>
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<tr>
<td><strong>ELECTIVES (INTER-DISCIPLINARY)</strong></td>
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<tr>
<td>Corporate Image and Etiquette</td>
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<td>Cabin Services</td>
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<td><strong>LIFE SKILLS MODULES</strong></td>
<td></td>
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<tr>
<td>Refer to page 304</td>
<td></td>
</tr>
</tbody>
</table>
**MODULE OBJECTIVES**

**Core Modules**

**Business Writing & Presentation**  
On completion of the module, students should be able to apply business writing and presentation skills in a variety of business contexts.

**Customer Relationship Management**  
On completion of the module, students should be able to recognise customer behaviour to build positive customer experience, utilise indicative trends and patterns in Customer Relationship Management (CRM) system to support business decision.

**Digital Commerce & Marketing**  
On completion of the module, students should be able to perform market research and plan, execute and evaluate a digital marketing strategy.

**Elementary Business Analytics & Cyber-security**  
On completion of the module, students should be able to analyse multiple sources of data to improve organisation's processes and achieve strategic objectives through data-driven decision-making concepts and theories. Students will also gain awareness on the importance of data confidentiality and data security.

**Principles of Service Management**  
On completion of the module, students should be able to apply techniques to enhance their professionalism as service employees, better understand customers and strategies to enhance customer experience and service quality.

**Event Operation & Management**  
On completion of the module, students should be able to understand the concepts of event planning and operations, and apply these concepts to event organisation at the workplace.

**Integrated Customer Service Support**  
On completion of the module, students should be able to manage multi-channel applications to handle customer care and support.

**Service Innovation & Design**  
On completion of the module, students should be able to identify need and uncover opportunity, create ideas and propose outcome to improve the efficiency of customer care and services.

**Customer Insight for Service**  
On completion of the module, students should be able to understand consumer behaviour and utilise applications for consumer analytics to enhance customer satisfaction.

**Industry Attachment**  
On completion of the module, students should be able to apply the skills and knowledge acquired to take on a range of job scope at the organisation.

**Electives (Course Specific)**

**Digital Storytelling**  
On completion of the module, students should be able to create various Electronic Direct Mailers (EDMs) to sell a product or service with an associated story tagline.

**Fundamentals of Customer Relationship Management**  
On completion of this module, students should be able to appreciate and carry out CRM effectively in a company’s operation.

**Introduction to Infocomm Service Support**  
On completion of the module, students should be able to describe the roles and responsibilities of an info-communication service support staff, describe the technical and soft skills required of an info-communication service support staff, answer customer enquiries pertaining to Infocomm Technology (ICT) matters over voice, written or social media platforms and identify customer service breakdown due to ICT matters.

**Engaging Customers in the Digital Age**  
On completion of the module, students should be able to handle customers’ needs effectively for a company’s operation through a Customer Relationship Management (CRM) system.

**Principles of International Commerce**  
On completion of the module, students should be able to apply the basic knowledge of importing goods from overseas with considerations of local requirements.

**Electives (Inter-disciplinary)**

**Corporate Image and Etiquette**  
On completion of the module, students should be able to maintain personal hygiene and grooming, and apply etiquette in a business setting.
Cabin Services
On completion of the module, students should be able to provide in-flight service, perform up-sell and cross sell of in-flight products and improve service procedures so as to ensure a safe and pleasant experience for passengers.

Digital Marketing
On completion of the module, students should be able to have a sense of marketing on the digital space and transverse the digital arena to bring products and/or ideas into the digital space using commercially available digital advertising tools.

Entrepreneurship Essentials
On completion of the module, students should be able to source new information from multiple sources, brainstorm ideas to find novel approaches to draft out a business plan through identifying business opportunities and applying marketing mix strategies with sound financial analysis.

Electives (General)
As reflected on pages 300-301.

Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN SPORT MANAGEMENT (2 YEARS)

COURSE SYNOPSIS

On completion of the course, students should be able to

- Organise sports events.
- Carry out community recreation and activity programmes.
- Perform fitness testing and program design.
- Assist the coach.
- Implement sport safety prevention and management.
- Conduct group exercise class.
- Provide quality customer service to participants and clients of gyms, country clubs and other fitness and sports clubs and associations.
- Carry out routine finance and general administration matters for management of sports activities.

JOB OPPORTUNITIES

Higher Nitec in Sport Management graduates are equipped with practical skills and sport and recreation industry knowledge. There are career opportunities in sport events management, coaching, recreation and outdoor activities etc. There are job opportunities as Activity Coordinators, Assistant Coach, Events Associate/Coordinator, Outdoor Education Specialist, Facilities Assistant/Coordinator, Program Assistant, RC Manager, Recreation Officer, Sport Executive, Sport Retail Executive etc.

CERTIFICATION

Credits required for certification:

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<thead>
<tr>
<th>Category</th>
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<tbody>
<tr>
<td>Core Modules</td>
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<td>Cluster Modules</td>
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<td>Specialisation Modules</td>
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<td>Life Skills Modules</td>
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<td>Cross Disciplinary Core Modules</td>
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<tr>
<td>Electives</td>
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<td><strong>Total</strong></td>
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</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Community & Recreation Programme Development
On completion of the module, students will be able to design, develop and offer a range of activities and programmes in areas such as community recreation, health, wellness and education to suit a variety of participant types and needs.

Group Fitness Exercise
On completion of the module, students should be able to design, choreograph and teach a group exercise class.

Sports & Exercise Science
On completion of the module, students should be able to apply the knowledge of exercise physiology, biomechanics and psychology through a scientific approach to sports, exercise and physical activity.

Basic Anatomy & Physiology
On completion of the module, students will be able to apply fundamental knowledge of the organisation, structures, functions and interrelation of the human body systems, including the skeletal, muscular, respiratory and circulatory systems, in maintaining homeostasis.

Fitness & Leisure Club Operations
On completion of the module, students should be able to handle routine activities and facilities operations and deliver membership and customer service experience in fitness and leisure clubs.

Sports Event Management
On completion of the module, students will be able to identify stakeholders’ event objectives, conceptualise and plan and execute a sports event. Students will acquire necessary skills to manage sports event operations, prepare budgets and timelines. In addition, students will be able to conduct risk management and implement safe event measures based on the SGSafe Event Standard and perform necessary sports event evaluation.

Health & Fitness Appraisal
On completion of the module, students should be able to perform basic pre-participation health screening and fitness assessments.

Cluster Modules

Digitalisation in Business
On completion of the module, students will be able to use digital technologies to transform the way businesses bring together customers, data and processes. Students should be able to analyse multiple sources of data to improve organisation’s processes and achieve strategic objectives through data-driven decision-making concepts. Students should understand how companies utilize indicative trends and patterns in Customer Relationship Management (CRM) systems, so as to better understand customer behaviour and anticipate customer needs/wants to support business decisions.

Digital Commerce & Marketing
On completion of this module, students should be able to perform market research and plan, execute and evaluate a digital marketing strategy. Students should be able to use digital marketing models, frameworks, and analytics tools to strategize and measure success for customer experience engagement and enhancement, and ultimately boost business performance.

Specialisation Modules

Sports Nutrition
On completion of the module, students will be able to apply knowledge of the effects of nutritional intake on sports and exercise performance. In addition, students will be able to design and develop a personal nutrition and hydration plan based on nutritional and dietary needs or recommendations for athlete.

Fitness Testing & Programme Design
On completion of the module, students should have an understanding of the core fitness instructor qualities, be able to assist in a health and fitness screening, design a fitness programme for participants, plan appropriate training programmes for specific needs, help participants increase their fitness levels and responses to exercise in order to give the participant a unique program to achieve their goals.

Sports Safety
On completion of the module, students will have an overview of injury prevention in sports. Students will attain proficiency in administering first aid, CPR and the use of AED. In addition, students will learn the Workplace Safety and Health (WSH) requirements and prevailing safe management measures to ensure the safety, health and wellness of participants/customers in sports, fitness or exercise settings.
**Sports Coaching**
On completion of the module, students should be able to perform routine coaching sessions by planning, conducting and reviewing practices.

**Industry Attachment**
On completion of the module, students should be able to apply the skills and knowledge acquired to take on a range of job scopes at the company.

**Cross Disciplinary Core Modules**

**Design Thinking for Business Services**
On completion of the module, students should be able to develop innovative solutions in a business environment via transdisciplinary thinking approach that meets stakeholders’ needs.

**Robotic Process Automation for Business**
On completion of the module, students should be able to appreciate the applications of Robotic Process Automation (RPA) and be equipped with RPA skills to automate repetitive business processes and operations.

**Electives**

**Sports Massage Therapy**
On completion of the module, students should be able to provide general sports massage treatments for athletes and clients.

**Outdoor Recreation**
On completion of the module, students should be able to plan an enjoyable outdoor activity session.

**Country Club Management**
On completion of the module, students should be able to assist in club operations, including, membership, food and beverage, golf, sports and recreation, social and entertainment, and other administrative and supporting functions.

**Life Skills Modules**
As reflected on page 304.
HIGHER NITEC IN ACCOUNTING (3 YEARS)

COURSE SYNOPSIS

On completion of the course, students should be able to

- Handle receivables/payables.
- Maintain inventory records.
- Maintain Property, Plant & Equipment (PPE) / Capital Expenditure (CE) register.
- Prepare financial accounting reporting activities.
- Prepare corporate accounting reporting activities.
- Prepare cost statement.

JOB OPPORTUNITIES

Higher Nitec in Accounting graduates are employed by government agencies, statutory boards and private sector companies. Some job titles held are Accounts Assistant, Accounts Associate and Finance Assistant. Graduates can advance in their careers once relevant experience and higher-level accounting skills are acquired. Positions include Accounts Executive and Senior Accounts Executive.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foundation Modules</td>
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<td>Core Modules</td>
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<td>Specialisation Modules</td>
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<td>Life Skills Modules</td>
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<td>Cross Disciplinary Core Modules</td>
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<td>Electives</td>
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<td><strong>Total</strong></td>
<td><strong>96</strong></td>
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COURSE STRUCTURE

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<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td><strong>FOUNDATION MODULES</strong></td>
<td></td>
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<tr>
<td>Basics of Data Analytics</td>
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<td>Social Media Marketing</td>
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<tr>
<td>Principles of Business</td>
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<td>Business Communication</td>
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<td>Service Excellence</td>
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<td><strong>CORE MODULES</strong></td>
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<td>Principles of Financial Accounting I</td>
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<tr>
<td>Principles of Financial Accounting II</td>
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<td>Business Ethics</td>
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<td>Fundamentals of Business Operations</td>
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<td>Digitalisation in Business</td>
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<td>Business Finance</td>
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<td>Personal Taxation</td>
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<td>Costing Basics</td>
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<td>Intermediate Financial Accounting I</td>
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<tr>
<td>Intermediate Financial Accounting II</td>
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<tr>
<td>Company Taxation &amp; Goods &amp; Services Tax</td>
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<tr>
<td>Advanced Financial Accounting</td>
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<td>Accounting Software Application</td>
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<td><strong>CROSS DISCIPLINARY CORE MODULES</strong></td>
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<td>Design Thinking for Business Services</td>
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<td>Robotic Process Automation for Business</td>
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<tr>
<td><strong>ELECTIVES</strong></td>
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<td>Customer Experience Design</td>
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<td>Effective Business Networking</td>
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<tr>
<td>Financial Accounting ERP Application</td>
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<tr>
<td>Infographics for Presentation &amp; Marketing</td>
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</tbody>
</table>
Module Title | Credits
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**LIFE SKILLS MODULES**
Refer to page 304

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.

**MODULE OBJECTIVES**

**Foundation Modules**

**Basics of Data Analytics**
On completion of the module, students should be able to adopt spreadsheet and analytics software to visualise and analyse data and generate formatted reports to facilitate informed business decision.

**Social Media Marketing**
On completion of the module, students should be able to develop social media content and apply online media tools to execute the organisation’s social media marketing strategies.

**Principles of Business**
On completion of the module, students should be able to understand basic business concepts and relate the impact of political, economic, social and technological factors on business activities.

**Business Communication**
On completion of the module, students should be able to apply essential communication skills to prepare business documents and presentations.

**Service Excellence**
On completion of the module, students should be able to understand the principles of service delivery, identify and respond to customers’ needs, create and deliver value to build positive customer experience and increase organisational profitability.

**Innovation & Entrepreneurship**
On completion of the module, students should be able to explore opportunities for value-creation with an innovative mind-set. Students should gain an overview of innovative strategies and be able to integrate Design Thinking and entrepreneurship concepts for a business venture.

**Core Modules**

**Principles of Financial Accounting I**
On completion of the module, students should be able to apply the knowledge of accounting theories and relate to business scenarios, and record business transactions.

**Principles of Financial Accounting II**
On completion of the module, students should be able to determine the value of stock, prepare Trial Balance, Bank Reconciliation, Statement of Comprehensive Income and Statement of Financial Position.

**Business Ethics**
On completion of the module, students should be able to adopt the fundamental ethics and standards of behaviour expected of an accounting professional.

**Fundamentals of Business Operations**
On completion of this module, students should be able to support business operations by recording business transactions, prepare ledgers and final accounts, compute employee payroll and prepare telegraphic transfers and documents to support international trade.

**Digitalisation in Business**
On completion of the module, students will be able to use digital technologies to transform the way businesses bring together customers, data and processes. Students should be able to analyse multiple sources of data to improve organisation’s processes and achieve strategic objectives through data-driven decision-making concepts. Students should understand how companies utilize indicative trends and patterns in Customer Relationship Management (CRM) systems, so as to better understand customer behaviour and anticipate customer needs/wants to support business decisions.

**Business Finance**
On completion of the module, students should be able to prepare Cash Budget, Cash Flow Statement and Capital Expenditure and Operating Expenditure List for a business and propose business finance options in a business.

**Personal Taxation**
On completion of the module, students should be able to gain an overview of the Singapore income tax system and its tax administration and be able to prepare computations of tax liability for resident individuals. This module covers employment income and other sources of income, types of deductions and personal reliefs.
Specialisation Modules

Costing Basics
On completion of the module, students should be able to apply basic costing concepts to ascertain costs associated with the production of goods.

Intermediate Financial Accounting I
On completion of the module, students should be able to maintain the fixed asset register, adjust entries to account receivables and prepare control accounts.

Intermediate Financial Accounting II
On completion of the module, students should be able to correct errors, prepare balance day adjustments and adjusted final accounts.

Company Taxation & Goods & Services Tax
On completion of the module, students should be able to prepare tax computations of tax liability for resident companies in Singapore and Goods and Services Tax (GST) returns for businesses. This module covers taxability of income, types of deductions and tax allowances available to reduce the chargeable income of a company.

Advanced Financial Accounting
On completion of the module, students should be able to prepare financial statements for partnership, cash budget and financial statements for limited companies.

Accounting Software Application
On completion of the module, students should be able to an overview of traditional and cloud accounting software. Students should be able to navigate accounting functions within the software by integrating their accounting knowledge with the use of the accounting software.

Industry Attachment 1
On completion of the 3-months internship module, students should be able to apply the skills and knowledge acquired to take on a range of job scopes at the company.

Industry Attachment 2
On completion of the 6-months internship module, students should be able to apply the skills and knowledge acquired to take on a range of job scopes at the company.

Cross Disciplinary Core Modules

Design Thinking for Business Services
On completion of the module, students should be able to develop innovative solutions in a business environment via transdisciplinary thinking approach that meets stakeholders’ needs.

Robotic Process Automation for Business
On completion of the module, students should be able to appreciate the applications of Robotic Process Automation (RPA) and be equipped with RPA skills to automate repetitive business processes and operations.

Electives

Customer Experience Design
On completion of the module, students should be able to appreciate and understand how customers think, behave, share and consume products/services from a customer journey perspective. This in turn will help students better understand how they can design better customer experiences to increase customer loyalty and generate more revenue.

Effective Business Networking
On completion of the module, students should be able to manage their professional image and build effective relationships with others.

Financial Accounting ERP Application
On completion of the module, students should be able to interpret business transactions, analyse and review financial accounting records and prepare financial statements within a computerised Enterprise Resource Planning system.

Infographics for Presentation & Marketing
On completion of the module, students should be able to communicate their presentation information more effectively through colours, visuals and infographics.

Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN SPORT MANAGEMENT (3 YEARS)

COURSE SYNOPSIS

On completion of the course, students should be able to

- Organise sports events.
- Carry out community recreation and activity programmes.
- Perform fitness testing and program design.
- Assist the coach.
- Implement sport safety prevention and management.
- Conduct group exercise class.
- Provide quality customer service to participants and clients of gyms, country clubs and other fitness and sports clubs and associations.
- Carry out routine finance and general administration matters for management of sports activities.

JOB OPPORTUNITIES

Higher Nitec in Sport Management graduates are equipped with practical skills and sport and recreation industry knowledge. There are career opportunities in sport events management, coaching, recreation and outdoor activities etc. There are job opportunities as Activity Coordinators, Assistant Coach, Events Associate/Coordinator, Outdoor Education Specialist, Facilities Assistant/Coordinator, Program Assistant, RC Manager, Recreation Officer, Sport Executive, Sport Retail Executive etc.

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<td>Core Modules</td>
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<td>Sports Event Management</td>
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<td>Health &amp; Fitness Appraisal</td>
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<td>Community &amp; Recreation Programme Development</td>
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<td>Group Fitness Exercise</td>
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<td>Sports &amp; Exercise Science</td>
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<td>Fitness Testing &amp; Programme Design</td>
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<td>Sports Safety</td>
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<td>Sports Coaching</td>
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<tr>
<td><strong>ELECTIVES</strong></td>
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<tr>
<td>Sports Massage Therapy</td>
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<td>Outdoor Recreation</td>
<td>3</td>
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<tr>
<td>Country Club Management</td>
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</table>
MODULE OBJECTIVES

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Basics of Data Analytics
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Social Media Marketing
On completion of the module, students should be able to develop social media content and apply online media tools to execute the organisation’s social media marketing strategies.

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Core Modules

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On completion of the module, students will be able to identify stakeholders’ event objectives, conceptualise and plan and execute a sports event. Students will acquire necessary skills to manage sports event operations, prepare budgets and timelines. In addition, students will be able to conduct risk management and implement safe event measures based on the SGSafe Event Standard and perform necessary sports event evaluation.

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On completion of the module, students will be able to apply knowledge of the effects of nutritional intake on sports and exercise performance. In addition, students will be able to design and develop a personal nutrition and hydration plan based on nutritional and dietary needs or recommendations for athlete.

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Sports Coaching
On completion of the module, students should be able to perform routine coaching sessions by planning, conducting and reviewing practices.

Industry Attachment 2
On completion of the module, students should be able to apply the skills and knowledge acquired to take on a range of job scopes at the company.

Cross Disciplinary Core Modules

Design Thinking for Business Services
On completion of the module, students should be able to develop innovative solutions in a business environment via transdisciplinary thinking approach that meets stakeholders’ needs.

Robotic Process Automation for Business
On completion of the module, students should be able to appreciate the applications of Robotic Process Automation (RPA) and be equipped with RPA skills to automate repetitive business processes and operations.

Electives

Sports Massage Therapy
On completion of the module, students should be able to provide general sports massage treatments for athletes and clients.

Outdoor Recreation
On completion of the module, students should be able to plan an enjoyable outdoor activity session.

Country Club Management
On completion of the module, students should be able to assist in club operations, including, membership, food and beverage, golf, sports and recreation, social and entertainment, and other administrative and supporting functions.

Life Skills Modules
As reflected on page 304.
NITEC IN BEAUTY & WELLNESS

COURSE SYNOPSIS

On completion of the course, students should be able to

- Handle salon operations.
- Conduct client consultation.
- Sterilise tools and equipment for treatment.
- Provide customer service.
- Provide skincare treatment.
- Provide makeup service.
- Provide nail service.
- Provide spa manicure and pedicure treatments.
- Provide waxing service.
- Provide manual and electrical facial treatments.
- Shape eyebrows.
- Promotes products and services.

JOB OPPORTUNITIES

Nitec in Beauty & Wellness graduates are employed by beauty and wellness establishments. Some of the job titles held by graduates include Beauty Therapist, Beautician, Manicurist & Pedicurist, Beauty Consultant and Make-up Artist.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
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<tr>
<td>Life Skills Modules</td>
<td>10</td>
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<tr>
<td>Elective Modules</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>60</strong></td>
</tr>
</tbody>
</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Salon Grooming & Etiquette
On completion of the module, student should be able project a professional image and apply etiquette in the salon.

Basic Makeup
On completion of the module, students should be able to provide day and evening makeup, as well as camouflage makeup.

Salon Business & Operation
On completion of the module, students should be able to communicate with clients and handle the daily operation of a salon.

Basic Nail Care
On completion of the module, students should be able to provide manicure and pedicure services.

Basic Facial
On completion of the module, students should be able to provide basic facial treatment and shape eyebrows.

Customer Service & Selling
On completion of the module, students should be able to cultivate rapport with customer, manage customer’s needs, provide service recovery, handle feedback, as well as promote products and services to customer.

Bridal Makeup
On completion of the module, students should be able to provide western and ethnic bridal makeup.

Hand & Foot Spa
On completion of the module, students should be able to provide hand and foot spa service.

Nutrition for Wellness
On completion of the module, students should be able to promote and recommend healthier food choices to client for overall well-being.

Facial & Waxing Treatments
On completion of the module, students should be able to provide advanced facial treatment, high frequency treatment, and waxing for facial and body hair removal.

Nail Art & Extension
On completion of the module, students should be able to provide nail art service and nail extension service.

Industry Attachment
Students will undergo a 3-month industry attachment at a beauty salon or wellness establishment to gain hands-on training in a range of beauty and wellness services.

Electives (Inter-disciplinary)

Swedish Therapy
On completion of the module, students should be able to provide Swedish body treatments using a variety of classical massage movements.

Foot Reflexology
On completion of the module, students should be able to treat reflex points and areas in the feet to improve circulation and induce relaxation.

Spa Service
On completion of the module, students should be able to provide hydro and thermal spa treatments, as well as body scrub and wrap treatment.

Bridal Hairstyling
On completion of the module, students should be able to provide simple bridal hairstyling and hair extension to complement bridal makeup service.

Electives (General)
As reflected on pages 302-304.

Life Skills Modules
As reflected on page 304.
This course provides students with the skills and knowledge to provide front line support and service for an organisation’s clients and customers. Major duties include the following:

- Respond to customer queries and feedback.
- Provide reception services.
- Organise and reporting data.
- Handle workplace communication.
- Perform administrative function.

Nitec in Business Services graduates are employed by companies in all sectors of the economy, including government agencies, statutory boards and private companies. Some of the job titles held by graduates include Customer Service Associate or Representative, Executive Assistant and Telesales Officer.

Credits required for certification:

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
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<td>Life Skills Modules</td>
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<td>Elective Modules</td>
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</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
**MODULE OBJECTIVES**

**Core Modules**

**Business Communication**
On completion of the module, students should be able to apply essential communication skills to build professional relationships, and prepare business documents as well as presentations.

**Customer Relationship & System**
On completion of the module, students should be able to understand the concept of Customer Relationship Management (CRM), identify customer needs through data patterns, suggest timely products and/or services to build customer loyalty and increase organisational profitability.

**Business Essentials**
On completion of the module, students should be able to apply relevant business concepts in the context of their workplace.

**Introduction to Data Analytics & Cyber-security**
On completion of the module, students should be able to adopt spreadsheet and analytics software to visualise and analyse data, and generate formatted reports to facilitate informed business decision. Students will also gain awareness on the importance of data confidentiality and data security.

**Social Media Marketing**
On completion of the module, students should be able to apply online media tools to execute the organisation’s social media marketing strategies.

**Customer Service**
On completion of the module, students should be able to identify and respond to customer and stakeholders needs, create and deliver value for targeted customers and the organisation.

**Event Planning & Administration**
On completion of the module, students should be able to plan an office event and handle event administration.

**Sales Techniques & Engagement**
On completion of the module, students should be able to apply sales techniques to sell to client needs and develop strong sales relationships.

**Personal Branding & Professional Image**
On completion of the module, students should be able to project a positive and personal brand.

**Industry Attachment**
On completion of the module, students should be able to apply the skills and knowledge acquired in various business organisations.

**Electives (Course Specific)**

**Multimedia & Desktop Publishing**
On completion of the module, students should be able to use the features of common Graphics Authoring Tools and presentation software to produce captivating and creative publications, showcasing an integrated display of animations.

**ASEAN Business Practices**
On completion of the module, students should be able to support and contribute to their organisation's expansion in ASEAN countries. Students should be able to support organisational readiness in expansion through the preparation of required information for business operations in host country such as business culture and practices and business operating requirements, for business operations in host country.

**Electives (Inter-disciplinary)**

**Entrepreneurship Essentials**
On completion of the module, students should be able to source new information from multiple sources, brainstorm ideas to find novel approaches to draft out a business plan through identifying business opportunities and applying marketing mix strategies with sound financial analysis.

**Digital Storytelling**
On completion of the module, students should be able to create various Electronic Direct Mailers (EDMs) to sell a product or service with an associated story tagline.

**Electives (General)**
As reflected on pages 302-304.

**Life Skills Modules**
As reflected on page 304.
NITEC IN FLORISTRY

COURSE SYNOPSIS

An Assistant Florist is one who designs and constructs floral arrangement, packs gift hamper for sale, prepares for and arranges floral decoration for event and assists in company’s online business.

The work that an Assistant Florist performs includes the following:

- Prepare floristry shop for business
- Condition flowers and foliage
- Arrange flowers
- Pack gift hamper
- Sell merchandise
- Set up floral decoration at event venue
- Maintain stock
- Arrange table garden
- Maintain and update online content
- Promote merchandise through social media platforms

JOB OPPORTUNITIES

Nitec in Floristry graduates are employed by floristry retail outlets. They can also be employed by wholesale florist establishments as well as interior-scape and event organizing companies that provide floral decorations. Some of the job titles held by graduates include Assistant Florist and Floral Assistant.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
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<td>Life Skills Modules</td>
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Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
**MODULE OBJECTIVES**

**Core Modules**

**Business Communication**
On completion of the module, students should be able to apply essential communication skills to build professional relationships, and prepare business documents as well as presentations.

**Customer Relationship & System**
On completion of the module, students should be able to understand the concept of Customer Relationship Management (CRM), identify customer needs through data patterns, suggest timely products and/or services to build customer loyalty and increase organisational profitability.

**Business Essentials**
On completion of the module, students should be able to apply relevant business concepts in the context of their workplace.

**Introduction to Data Analytics & Cyber-security**
On completion of the module, students should be able to adopt spreadsheet and analytics software to visualise and analyse data, and generate formatted reports to facilitate informed business decision. Students will also gain awareness on the importance of data confidentiality and data security.

**Social Media Marketing**
On completion of the module, students should be able to apply online media tools to execute the organisation’s social media marketing strategies.

**Hand-tied Bouquet**
On completion of the module, students should be able to prepare flowers for conditioning, condition and dye fresh cut flowers, store them in controlled condition, and prepare hand-tied bouquet.

**Floral & Gift Arrangement**
On completion of the module, students should be able to arrange flowers for table decoration, prepare plant arrangement and prepare gift hamper.

**Floral Decoration for Event**
On completion of the module, students should be able to plan, prepare and arrange floral decoration for events such as wedding, store opening and funeral.

**Floristry Shop Operation**
On completion of the module, students should be able to handle a range of core retail operations in a floristry shop such as receiving, pricing, replenishing, cashiering and maintaining online content.

**Industry Attachment**
Students will go on a 3-month industry attachment at a floral outlet or event company that provides floral decorations to gain hands-on practical training in a real work environment.

**Electives (Course Specific)**

**Creative Flower Arrangement**
On completion of the module, students will be equipped with skills and knowledge to design and create flower arrangements and topiaries, and perform leaf manipulation.

**Advanced Floristry Techniques**
On completion of the module, students will be equipped with skills and knowledge to design and create table arrangements, hand-tied bouquets, flowers to wear and carry and room decorations with floral structures.

**Electives (Inter-disciplinary)**

**Entrepreneurship Essentials**
On completion of the module, students should be able to source new information from multiple sources, brainstorm ideas to find novel approaches to draft out a business plan through identifying business opportunities and applying marketing mix strategies with sound financial analysis.

**Digital Storytelling**
On completion of the module, students should be able to create various Electronic Direct Mailers (EDMs) to sell a product or service with an associated story tagline.

**Electives (General)**
As reflected on pages 302-304.

**Life Skills Modules**
As reflected on page 304.
NITEC IN HAIR FASHION & DESIGN

COURSE SYNOPSIS

On completion of the course, students should be able to:

- Handle salon operations.
- Provide shampoo and head massage.
- Provide hairstyling.
- Provide haircuts.
- Provide hair perming and hair rebonding services.
- Provide hair and scalp treatments.
- Provide customer service.
- Provide client consultation.

JOB OPPORTUNITIES

*Nitec in Hair Fashion & Design graduates are employed by hair salons and hair spas in the hairdressing industry. Some of the job titles held by graduates include Junior Hairdresser, Junior Hair Stylist and Hair Colourist.*

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Core Modules</th>
<th>55</th>
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**COURSE STRUCTURE**

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<th>Module Title</th>
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<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
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<tr>
<td>Salon Grooming &amp; Etiquette</td>
<td>4</td>
</tr>
<tr>
<td>Salon Business &amp; Operation</td>
<td>4</td>
</tr>
<tr>
<td>Shampoo and Head Massage</td>
<td>5</td>
</tr>
<tr>
<td>Basic Hairstyling</td>
<td>4</td>
</tr>
<tr>
<td>Basic Hair Colouring</td>
<td>5</td>
</tr>
<tr>
<td>Basic Haircutting</td>
<td>5</td>
</tr>
<tr>
<td>Customer Service &amp; Selling</td>
<td>4</td>
</tr>
<tr>
<td>Advanced Hair Colouring</td>
<td>6</td>
</tr>
<tr>
<td>Advanced Haircutting</td>
<td>4</td>
</tr>
<tr>
<td>Hair Perming</td>
<td>5</td>
</tr>
<tr>
<td>Hair and Scalp Care</td>
<td>5</td>
</tr>
<tr>
<td>Industry Attachment</td>
<td>4</td>
</tr>
<tr>
<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
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<tr>
<td>Hair Upstyles</td>
<td>3</td>
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<tr>
<td>Basics of Barbering</td>
<td>3</td>
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<tr>
<td><strong>ELECTIVES (GENERAL)</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to pages 302-304</td>
<td></td>
</tr>
<tr>
<td><strong>LIFE SKILLS MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to page 304</td>
<td></td>
</tr>
</tbody>
</table>

*Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.*
**MODULE OBJECTIVES**

**Core Modules**

**Salon Grooming & Etiquette**
On completion of the module, students should be able to project a professional image and apply etiquette in the salon.

**Shampoo Business & Operations**
On completion of the module, students should be able to communicate with clients and handle the daily operation of a salon.

**Shampoo & Head Massage**
On completion of the module, students should be able to perform shampooing at basin, seated shampoo, massage scalp, neck and shoulder, and blow dry hair.

**Basic Hairstyling**
On completion of the module, students should be able to style various length of hair with styling tools, equipment, styling and finishing products.

**Basic Hair Colouring**
On completion of the module, students should be able to colour virgin hair, grey hair and regrowth hair.

**Basic Haircutting**
On completion of the module, students should be able to perform blunt and layered haircuts.

**Customer Service & Selling**
On completion of the module, students should be able to cultivate rapport with customer, manage customer’s needs, provide service recovery, handle feedback, as well as promote products and services to customer.

**Advanced Hair Colouring**
On completion of the module, students should be able to perform highlighting and lowlighting, bleach and tone hair, and basic hair colour correction.

**Advanced Haircutting**
On completion of the module, students should be able to perform a graduated haircut and combination haircut.

**Hair Perming**
On completion of the module, students should be able to perform hair perming and hair straightening.

**Electives (Course Specific)**

**Hair & Scalp Care**
On completion of the module, students should be able to analyse and treat hair and scalp problems, and recommend follow-up actions.

**Industry Attachment**
Students are provided with the opportunity to undergo a 3-month industry attachment at a hairdressing salon to gain hands-on practical training in a range of hair services.

**Electives (General)**
As reflected on pages 302-304.

**Life Skills Modules**
As reflected on page 304.
NITEC IN LOGISTICS SERVICES

COURSE SYNOPSIS

This programme provides students with the skills and knowledge to perform essential warehouse logistics tasks and other duties such as transport operations, production operations, system and administrative support. Graduates will be able to contribute to the service level and profitable growth of the specific logistics sub-sector they are engaged in. Major duties include the following:

- Provide logistics operations support
- Provide warehousing services support
- Provide air, land and sea freight logistic support
- Provide quality customer service
- Produce office documents using common software packages
- Handle office procedures
- Handle oral and written communication in a business / workplace environment

JOB OPPORTUNITIES

Nitec in Logistics Services graduates have broad-based training and can therefore gain employment opportunities at entry-level positions in the Supply Chain and Logistics industry. Some of the job titles that graduates could hold are Logistics Assistant, Cargo Operations Assistant, Shipping Assistant, Documentation Assistant, Warehouse Assistant, Goods Handler, Material Handler, Load Controller, Inventory Control Assistant, Procurement Assistant, Purchasing Assistant, and Supply Chain Assistant.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Core Modules</td>
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<td>Elective Modules</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Business Communication
On completion of the module, students should be able to apply essential communication skills to build professional relationships, and prepare business documents as well as presentations.

Customer Relationship & System
On completion of the module, students should be able to understand the concept of Customer Relationship Management (CRM), identify customer needs through data patterns, suggest timely products and/or services to build customer loyalty and increase organisational profitability.

Introduction to Data Analytics & Cyber-security
On completion of the module, students should be able to adopt spreadsheet and analytics software to visualise and analyse data, and generate formatted reports to facilitate informed business decision. Students will also gain awareness on the importance of data confidentiality and data security.

Social Media Marketing
On completion of the module, students should be able to apply online media tools to execute the organisation’s social media marketing strategies.

Logistics Operations
On completion of the module, students should be able to provide support in the movement of goods from supplier to customer.

Event Logistics
On completion of the module, students should be able to load and move items, set-up and tear down, coordinate materials, resources and equipment, store and retrieve items.

Warehousing Services
On completion of the module, students should be able to pull, pack and ship orders, load and unload freight as well as provide direct customer service.

Material Moving Equipment
On completion of the module, students should be able to explain functional features and capability of a forklift truck. They should be able to perform checks on reach trucks and forklifts. They would also be able to safely operate the forklift truck in a work environment. The course also prepares the trainees for the Singapore Workforce Skills Qualification (WSQ) assessment in the Operate Forklift competency unit. Upon passing this assessment, the graduates will be able to legally operate a forklift truck.

Air, Land and Sea Logistics
On completion of the module, students should be able to prepare necessary documentation, handle customs declarations and TradeNet operations, liaise and follow-up with internal office, agents and clients.

Industry Attachment
Students will be placed on a 6-month industry attachment; they will have the opportunity to apply concepts and skills acquired during institutional training in real work environment, gain hands-on practical training pertaining to the Supply Chain and Logistics Industry.

Electives (Inter-disciplinary)

Entrepreneurship Essentials
On completion of the module, students should be able to source new information from multiple sources, brainstorm ideas to find novel approaches to draft out a business plan through identifying business opportunities and applying marketing mix strategies with sound financial analysis.

Multimedia & Desktop Publishing
On completion of the module, students should be able to use the features of common Graphic Authoring Tools and presentation software to produce captivating and creative publications, showcasing an integrated display of animation.

Digital Storytelling
On completion of the module, students should be able to create various Electronic Direct Mailers (EDMs) to sell a product or service with an associated story tagline.

Electives (General)
As reflected on pages 302-304.

Life Skills Modules
As reflected on page 304.
NITEC IN RETAIL SERVICES

COURSE SYNOPSIS

On completion of the course, students should be able to:

• Promote products and services.
• Perform suggestive and cross selling.
• Interact with customers face-to-face.
• Provide customer service.
• Handle merchandise.
• Manage stock inventory.
• Arrange display of merchandise.
• Perform cashiering.

JOB OPPORTUNITIES

Nitec in Retail Services graduates are employed by departmental stores or companies in the retail business selling products and services direct to customers. Some of the job titles held by graduates include Retail Sales Associate, Retail Assistant, Cashier, Customer Service Associate and Sales Executive.

CERTIFICATION

Credits required for certification:

| Core Modules                  | 48 |
| Life Skills Modules           | 9  |
| Elective Modules              | 6  |
| **Total**                     | **63** |

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
**MODULE OBJECTIVES**

**Core Modules**

**Business Communication**
On completion of the module, students should be able to apply essential communication skills to build professional relationships, and prepare business documents as well as presentations.

**Business Essentials**
On completion of the module, students should be able to apply relevant business concepts in the context of their workplace.

**Introduction to Data Analytics & Cyber-security**
On completion of the module, students should be able to adopt spreadsheet and analytics software to visualise and analyse data, and generate formatted reports to facilitate informed business decision. Students will also gain awareness on the importance of data confidentiality and data security.

**Social Media Marketing**
On completion of the module, students should be able to apply online media tools to execute the organisation’s social media marketing strategies.

**Retail & Online Selling**
On completion of the module, students should be able to perform sales duties by identifying the needs of the customers and applying selling techniques when handling the sales process. In addition, students are expected to be more aware of how technology is transforming the retail selling function.

**Retail Operations**
On completion of the module, students should be able to handle a range of core retail operations such as receiving, pricing, replenishing stock and cashiering.

**Retail Promotion & e-Marketing**
On completion of the module, students should be able to engage in the promotion of goods and services and be aware of the extent technology is transforming retail promotion and marketing landscape.

**Visual Merchandising**
On completion of the module, students should be able to develop basic visual merchandising skills in executing a visual presentation to enhance a retail store’s image, service, and merchandise to its customers.

**Electives (Inter-disciplinary)**

**Cosmetics Retailing**
On completion of the module, students will be equipped with skills to maintain good personal grooming, conduct a comprehensive skin analysis, demonstrate usage of cosmetic products and related services as well as display merchandise to enhance a cosmetic counter’s image, service and merchandise to its customers.

**Entrepreneurship Essentials**
On completion of the module, students should be able to source new information from multiple sources, brainstorm ideas to find novel approaches to draft out a business plan through identifying business opportunities and applying marketing mix strategies with sound financial analysis.

**Hair Upstyles**
On completion of the module, students are trained to perform upstyles, use clip-on hair extensions and attach wig pieces.

**Digital Storytelling**
On completion of the module, students should be able to create various Electronic Direct Mailers (EDMs) to sell a product or service with an associated story tagline.

**Electives (General)**
As reflected on pages 302-304.

**Life Skills Modules**
As reflected on page 304.
NITEC IN TRAVEL & TOURISM SERVICES

COURSE SYNOPSIS

On completion of the course, students should be able to:

- Determine client’s travel plan and requirements.
- Provide advice on travel destinations.
- Promote and sell travel, tour, attractions and membership packages.
- Handle reservations and ticketing.
- Coordinate inbound and outbound tours.
- Deliver quality service to visitors.
- Perform hosting and guiding.
- Coordinate events.

JOB OPPORTUNITIES

Nitec in Travel & Tourism Services graduates are employed by tour agencies and attractions operators, travel agencies and other establishments in the leisure and travel sectors. Some of the job titles held by graduates include Tour and Travel Consultant, Ticketing Officer, Attraction Host, Park Operations Crew and Guest Services Officer.

CERTIFICATION

Credits required for certification:

| Core Modules | 50 |
| Life Skills Modules | 9 |
| Elective Modules | 6 |
| **Total** | **65** |

<table>
<thead>
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<th>Module Title</th>
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<td><strong>CORE MODULES</strong></td>
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<tr>
<td>Business Communication</td>
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<td>Customer Relationship &amp; System</td>
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<td>Introduction to Tourism</td>
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<tr>
<td>Personal Branding &amp; Professional Image</td>
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<tr>
<td>Introduction to Data Analytics &amp; Cyber-security</td>
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<td>Tour Operation &amp; Services</td>
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<td>Attractions Operation &amp; Services</td>
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<td>Event Promotion &amp; Operations</td>
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<td>Industry Attachment</td>
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<td><strong>ELECTIVES (INTER-DISCIPLINARY)</strong></td>
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<tr>
<td>Introduction to Hospitality Guest Services</td>
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<td>Entrepreneurship Essentials</td>
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<td>Social Media Marketing</td>
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<td><strong>LIFE SKILLS MODULES</strong></td>
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<tr>
<td>Refer to page 304</td>
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</tbody>
</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Business Communication
On completion of the module, students should be able to apply essential communication skills to build professional relationships, and prepare business documents as well as presentations.

Customer Relationship & System
On completion of the module, students should be able to understand the concept of Customer Relationship Management (CRM), identify customer needs through data patterns, suggest timely products and/or services to build customer loyalty and increase organisational profitability.

Introduction to Tourism
On completion of the module, students should be able to provide an overview of the tourism industry, explain the economic, social and cultural impacts of tourism, differentiate between physical and human geography and appreciate the tourist appeal of major tourist destinations.

Personal Branding & Professional Image
On completion of the module, students should be able to project a positive and personal brand.

Introduction to Data Analytics & Cyber-security
On completion of the module, students should be able to adopt spreadsheet and analytics software to visualise and analyse data, and generate formatted reports to facilitate informed business decision.

Tour Operation & Services
On completion of the module, students should be able to propose and sell tour packages, make tour arrangements, and handle inbound and outbound tours.

Attractions Operation & Services
On completion of the module, students should be able to provide warm and personalised visitor services, handle basic ride operations, perform attractions hosting and guiding, control crowds and provide assistance to visitors in distressed and emergency situations.

Event Promotion & Operations
On completion of the module, students should be able to prepare for private and corporate functions in an attraction establishment, coordinate and carry out event-day as well as end-of-event activities.

Industry Attachment
Students are provided with the opportunity to work in a leisure or travel setting for 6 months.

Electives (Inter-disciplinary)

Introduction to Hospitality Guest Services
On completion of this module, students should be able to provide various guest services in the hospitality industry, specifically concierge and bell services.

Entrepreneurship Essentials
On completion of the module, students should be able to source new information from multiple sources, brainstorm ideas to find novel approaches to draft out a business plan through identifying business opportunities and applying marketing mix strategies with sound financial analysis.

Social Media Marketing
On completion of the module, students should be able to apply online media tools to execute the organisation’s social media marketing strategies.

Robotic Process Automation for Business
On completion of the module, students should be able to appreciate the applications of Robotic Process Automation (RPA) and be equipped with RPA skills to automate repetitive business processes and operations.

Electives (General)
As reflected on pages 302-304.

Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN ARCHITECTURAL TECHNOLOGY

COURSE SYNOPSIS

On completion of the course, students should be able to

- Construct architectural drawings.
- Develop architectural project presentation.
- Execute architectural design process.
- Develop architectural design for construction.
- Perform BIM coordination for architectural design.
- Apply Green Mark and Universal Design requirements.

JOB OPPORTUNITIES

Higher Nitec in Architectural Technology graduates are employed by government departments, statutory boards, architectural firms and construction companies. They perform a crucial role of ensuring building plans, working drawings, construction details are produced, in coordination with related building industry disciplines, to meet the needs of the users such as clients, contractors, authorities, consultants, and building occupants, at the different stages of the project. Some of the job titles held by graduates include Architectural Technical Officer, Architectural Technical Coordinator, Architectural Technologist, and Architectural Building Information Modelling (BIM) Specialist.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Core Modules</th>
<th>48</th>
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<tbody>
<tr>
<td>Life Skills Modules</td>
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COURSE STRUCTURE

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<th>Module Title</th>
<th>Credits</th>
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<tr>
<td><strong>CORE MODULES</strong></td>
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</tr>
<tr>
<td>Architectural Drawing</td>
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<tr>
<td>Architectural Modelling</td>
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</tr>
<tr>
<td>Architectural Design Process</td>
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<tr>
<td>Architectural Construction Technology</td>
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<tr>
<td>Architectural BIM Design</td>
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<tr>
<td>Green Mark and Universal Design</td>
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<td>Industry Attachment</td>
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<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
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<tr>
<td>Architectural Visualisation</td>
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<tr>
<td>Visual Perception for Architecture</td>
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<tr>
<td><strong>ELECTIVES (GENERAL)</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to pages 300-301</td>
<td></td>
</tr>
<tr>
<td><strong>LIFE SKILLS MODULES</strong></td>
<td></td>
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<tr>
<td>Refer to page 304</td>
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</tbody>
</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Architectural Drawing
On completion of the module, students should be able to apply concepts of spatial composition and knowledge of architectural drawing techniques and conventions to produce architectural sketches, perspectives and architectural building drawings and presentation boards for further design development.

Architectural Modelling
On completion of the module, students should be able to produce a consolidated architectural presentation package complete with project brief, presentation drawings, 3D rendering and animations.

Architectural Design Process
On completion of the module, students should be able to gather the necessary codes and regulations to be applied when preparing a set of building drawings for submission purposes using relevant computer software. Students should also be able to apply the knowledge of architectural schedules and detail elements to prepare a set of working drawings for construction purposes.

Architectural Construction Technology
On completion of the module, students should be able to produce a set of submission drawings and perform Buildability Score calculations. They should also be able to produce complete sets of architectural tender and construction drawing packages incorporating all required drawings, details, technical specifications and documentation necessary for calling of tender and construction of buildings on site respectively.

Architectural BIM Design
On completion of the module, students should be able to integrate building services and structural systems with the architectural design using BIM modelling. They should be able to perform multi-disciplinary coordination and clash detection through usage of BIM software.

Green Mark and Universal Design
On completion of the module, students should be able to apply the principles and requirements of Green Mark to develop detail elements and features of sustainable building and produce a set of detail drawings. Students should also be able to apply the principles and requirements of Universal Design to develop design features for accessibility in built environment and produce a set of detail drawings.

Industry Attachment
Students will undergo a 6-month industry attachment with architectural design and building and construction companies where they will apply and integrate the technical, social and methodological competencies in carrying out related industry projects.

Electives (Course Specific)

Architectural Visualisation
On completion of the module, students should be able to produce rendered still images and video walk-through of three-dimensional building models using appropriate software and technology.

Visual Perception for Architecture
On completion of the module, students should be able to relate the various styles and periods in architecture and demonstrate relevant principles to achieve visual balance and visual order in architectural compositions.

Electives (General)
As reflected on pages 300-301.

Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN FILMMAKING (CINEMATOGRAPHY)

COURSE SYNOPSIS

On completion of the course, students should be able to

Camera
• Perform camera assisting
• Perform camera operations
• Perform data wrangling

Lighting
• Perform lighting setups
• Assist in the lighting requirements

Grip
• Perform dolly operations
• Perform jib arm operations

Audio
• Perform sound recording

Post-production
• Perform video editing

Production
• Assist in production management
• Coordinate production requirements

Art
• Assist in the art department

JOB OPPORTUNITIES

Higher Nitec in Filmmaking (Cinematography) graduates can develop their careers with Film/TV production companies. Some of the job titles held by graduates include Camera Operator, Camera Assistant, Focus Puller, Drone Operator, Data Wrangler, Lighting Crew, Grip, Sound Recordist and Post-Production Assistant. There are excellent opportunities for career advancement to supervisory positions in areas such as Production Management, Camera Operations, Lighting and Grip Department.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Credits</th>
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COURSE STRUCTURE

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<td><strong>CORE MODULES</strong></td>
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<tr>
<td>Filmmaking Fundamentals</td>
<td>7</td>
</tr>
<tr>
<td>Camera Technology</td>
<td>7</td>
</tr>
<tr>
<td>Production Coordination and Post</td>
<td>6</td>
</tr>
<tr>
<td>Camera Movement and Lighting</td>
<td>6</td>
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<tr>
<td>Production Aesthetics and Lighting Techniques</td>
<td>7</td>
</tr>
<tr>
<td>Applied Cinematography</td>
<td>7</td>
</tr>
<tr>
<td>Project</td>
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<td>Industry Attachment</td>
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<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
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</tr>
<tr>
<td>Audio for Video</td>
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<td><strong>ELECTIVES (GENERAL)</strong></td>
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</tr>
<tr>
<td>Refer to pages 300-301</td>
<td></td>
</tr>
<tr>
<td><strong>LIFE SKILLS MODULES</strong></td>
<td></td>
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<tr>
<td>Refer to page 304</td>
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</tbody>
</table>

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**MODULE OBJECTIVES**

**Core Modules**

**Filmmaking Fundamentals**
On completion of the module, students should be able to identify filmmaking processes and evaluate visual storytelling techniques. They will also acquire non-linear editing skills to create coherent storytelling structures with the footages.

**Camera Technology**
On completion of the module, students should be able to determine production equipment requirements and acquire the skills sets of setting up interchangeable lens camera system with essential peripherals for media recording. This module covers the key aspects of camera assisting for digital film production.

**Production Coordination and Post**
On completion of the module, students should be able to carry out script breakdown, plan production budgets and schedules, coordinate technical and logistical requirements for principle photography and carry out post production.

**Camera Movement and Lighting**
On completion of the module, students should be able to set up lighting equipment, operate camera, set up and operate camera movement systems. This module covers the key aspects of gripping and lighting techniques in film production.

**Production Aesthetics and Lighting Techniques**
On completion of the module, students should be able to prepare and assist the art department in set and location aesthetic requirements. They should also learn the necessary lighting techniques to carry out scene lighting to achieve the required cinematic look.

**Applied Cinematography**
On completion of the module, students should be able to apply cinematography techniques in specialised camera systems and lighting rigs. They should be able to support the cinematographer in camera and lighting operations to meet the requirements of the dramatic content.

**Project**
On completion of the module, students should be able to plan, produce, shoot and edit their final year project to create a portfolio that will demonstrate their creative and technical competences.

**Industry Attachment**
On completion of the module, students should be able to integrate and apply the knowledge and skills that they have acquired and develop competencies in other areas at the workplace.

**Electives (Course Specific)**

**Audio for Video**
On completion of the module, students should be able to apply the knowledge and skills of audio production for video, which includes the ability to employ the right type of microphones, carry out microphone placement techniques, record audio signals, identify different audio formats, and perform audio editing and mixing. The students should also be able to apply basic audio filters and effects for video post-production.

**Electives (General)**
As reflected on pages 300-301.

**Life Skills Modules**
As reflected on page 304.
**HIGHER NITEC IN INTERACTIVE DESIGN**

**COURSE SYNOPSIS**

On completion of the course, students should be able to

- Design user interface.
- Produce drawings.
- Create digital images.
- Deploy user experience for web.
- Perform non-linear editing.
- Conceptualize web design.

**JOB OPPORTUNITIES**

*Higher Nitec* in Interactive Design graduates can develop their careers in any of the following industries:

- Rich Media & Publishing sub-sector of the Interactive Digital Media (IDM) sector
- Advertising
- Graphic Design
- Publishing & Printing

Some of the job titles held by graduates include:

- Digital Designer / Graphic Designer / Interaction Designer
- Design Facilitator
- Visualiser / Creative Visualiser / Data Visualiser / 2D/3D Visualiser / Storyteller / Renderer / Photographer / Videographer / Multimedia Artist

There are excellent opportunities for career advancement to higher positions. The typical career progression path for an Interactive Designer could include:

   Designer ➔ Lead Designer ➔ Principle Designer

**CERTIFICATION**

Credits required for certification:

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Core Modules</td>
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**COURSE STRUCTURE**

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<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
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</tr>
<tr>
<td>Visual Design Principles</td>
<td>7</td>
</tr>
<tr>
<td>Digital Photography &amp; Imaging</td>
<td>7</td>
</tr>
<tr>
<td>Web Design &amp; Development</td>
<td>7</td>
</tr>
<tr>
<td>Digital Content Creation</td>
<td>7</td>
</tr>
<tr>
<td>Content Management System Essentials</td>
<td>7</td>
</tr>
<tr>
<td>Responsive Web Design</td>
<td>7</td>
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<tr>
<td>User Experience Design Essentials</td>
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<tr>
<td>Industry Attachment</td>
<td>4</td>
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<tr>
<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
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<tr>
<td>Infographic Design</td>
<td>2</td>
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<tr>
<td>Screen Typography</td>
<td>2</td>
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<tr>
<td>Digital Marketing Essentials</td>
<td>2</td>
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<tr>
<td><strong>ELECTIVES (GENERAL)</strong></td>
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<tr>
<td>Refer to pages 300-301</td>
<td></td>
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<tr>
<td><strong>LIFE SKILLS MODULES</strong></td>
<td></td>
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<tr>
<td>Refer to page 304</td>
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</tbody>
</table>

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MODULE OBJECTIVES

Core Modules

Visual Design Principles
On completion of the module, students should be able to apply design elements and design principles onto user interfaces.

Digital Photography & Imaging
On completion of the module, students should be able to acquire and manipulate digital images for various media platforms.

Web Design & Development
On completion of the module, students should be able to design website mock-ups and apply the fundamentals of web development using Hypertext Mark-Up Language (HTML) and Cascading Style Sheets (CSS).

Digital Content Creation
On completion of the module, students should be able to integrate digital media such as audio and video elements, animation and other media formats for various media platforms.

Content Management System Essentials
On completion of the module, students should be able to create, manage, and publish dynamic web content using Content Management System (CMS).

Responsive Web Design
On completion of the module, students should be able to develop and deploy responsive interactive mobile web applications through the use of server side scripting with database integration.

User Experience Design Essentials
On completion of the module, students should be able to create interfaces with a focus on enhancing user satisfaction by improving the usability and accessibility.

Industry Attachment
On completion of the module, students should be able to apply practical knowledge and skills acquired to the industry and would have gained relevant work experience.

Electives (Course Specific)

Infographic Design
On completion of the module, students should be able to convert complicated information including facts, data and references into comprehensive and appealing visual infographic presentations.

Screen Typography
On completion of the module, students should be able to apply good typography practices to create visually appealing and highly usable type for screen.

Digital Marketing Essentials
On completion of the module, students should be able to apply the fundamentals of digital marketing concepts and strategies for various digital media platforms.

Electives (General)
As reflected on pages 300-301.

Life Skills Modules
As reflected on page 304.
**HIGHER NITEC IN MOTION GRAPHICS**

### COURSE SYNOPSIS

On completion of the course, students should be able to

- Plan production work.
- Perform non-linear editing.
- Develop 2D and 3D assets.
- Create animation.
- Perform video compositing.

### JOB OPPORTUNITIES

*Higher Nitec* in Motion Graphics graduates are employed by companies in the post-production, broadcasting, film, games, design and media sectors. They perform work involving the creation of graphics, animation and live video content for a diverse array of media, including smartphones, handheld electronic devices, the web and television.

Some of the job titles held by graduates at entry level include Broadcast Graphics Artist, Animator, Video Editor and Broadcast Designer. There are excellent opportunities for career advancement to higher positions.

The typical career progression path for a motion graphics graduate could include:

- Junior Broadcast Designer ➔ Senior Broadcast Designer ➔ Lead Artist ➔ Head of Production

### CERTIFICATION

Credits required for certification:

<table>
<thead>
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<th>Module</th>
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<tr>
<td>Core Modules</td>
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### COURSE STRUCTURE

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<th>Module Title</th>
<th>Credits</th>
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<td><strong>CORE MODULES</strong></td>
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<tr>
<td>Digital Imaging Essentials</td>
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<tr>
<td>Design Principles</td>
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<tr>
<td>Motion Design</td>
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<tr>
<td>3D Fundamentals</td>
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<tr>
<td>Finishing for Motion Graphics</td>
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<tr>
<td>3D for Motion Graphics</td>
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<td>Motion Graphics Portfolio</td>
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<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
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<td><strong>ELECTIVES (GENERAL)</strong></td>
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<td>Refer to pages 300-301</td>
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<td><strong>LIFE SKILLS MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to page 304</td>
<td></td>
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</tbody>
</table>

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**Module Objectives**

**Core Modules**

**Digital Imaging Essentials**
On completion of the module, students should be able to create graphics and illustrations using digital imaging software. Students will also be able to digitally manipulate and retouch images according to the specific styles required.

**Design Principles**
On completion of the module, students should be able to apply design elements like form, shapes, lines, colour, and type into compositions that creatively expresses their ideas. Their compositions should demonstrate knowledge of design principles effectively.

**Motion Design**
On completion of the module, students should be able to apply their graphics creation to the dimension of time, animation, keyframing and movement. Their compositions should demonstrate knowledge of animation principles in two-dimensional styles and three-dimensional imagery.

**3D Fundamentals**
On completion of the module, students should be able to create 3D elements for the media. This module covers the creation of 3D elements and exporting into the appropriate file format.

**Finishing for Motion Graphics**
On completion of the module, students should be able to manipulate 2D/3D layers, video footage and apply appropriate animation to create the motion graphics. This module covers the fundamentals of layout and compositing techniques.

**3D for Motion Graphics**
On completion of the module, students should be able to create 3D animation using simulation and particle techniques. The module covers the techniques and workflow in creating dynamic effects animation.

**Motion Graphics Portfolio**
On completion of the module, students should be able to apply creative process to derive design concept to meet the project’s requirements.

**Industry Attachment**
On completion of the module, students should be able to apply and integrate the skills and knowledge that they have acquired to the industry and would have gained relevant work experience.

**Electives (Course Specific)**

**Creative Production**
On completion of this module, students should be able to produce video clips using appropriate production and post-production techniques.

**Electives (General)**
As reflected on pages 300-301.

**Life Skills Modules**
As reflected on page 304.
HIGHER NITEC IN PERFORMANCE PRODUCTION

COURSE SYNOPSIS

On completion of the course, students should be able to

- Assist to manage the production backstage.
- Operate and set up lighting, sound, multimedia and staging systems.
- Interpret production documents.
- Coordinate scenic arts, props and sets.

JOB OPPORTUNITIES

Higher Nitec in Performance Production graduates are employed by theatre venues, technical production houses, audio visual companies, live concert organisers, event organisers and etc. Some of the job titles held by graduates include Performance Production Assistant, Lighting and Sound Crew, Technician (Stage, Concert & Studio), and Event Technical Crew.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Modules</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
<td>52</td>
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<td>Life Skills Modules</td>
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<td><strong>Total</strong></td>
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COURSE STRUCTURE

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<td><strong>CORE MODULES</strong></td>
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<tr>
<td>Performance Production Management</td>
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<td>Lighting for Production I</td>
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<td>Sound for Production I</td>
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<td>Stage Craft and Staging Systems</td>
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<td>Visual Multimedia</td>
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<td>Lighting for Production II</td>
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<td>Sound for Production II</td>
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<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
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<tr>
<td>Stage Effects</td>
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<td><strong>ELECTIVES (GENERAL)</strong></td>
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<tr>
<td>Refer to pages 300-301</td>
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<tr>
<td><strong>LIFE SKILLS MODULES</strong></td>
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</table>

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**MODULE OBJECTIVES**

**Core Modules**

**Performance Production Management**
On completion of the module, students should be able to identify the various performing disciplines and recognise the industry etiquettes and practices. They should also assist in managing and executing various responsibilities leading to a production.

**Lighting for Production I**
On completion of the module, students should be able to interpret lighting document, set up and operate lighting equipment and systems in accordance with work safety and health requirements and regulations. They should also be able to maintain lighting equipment and system.

**Sound for Production I**
On completion of the module, students should be able to interpret sound document, set up and operate sound system and equipment live and online performances in accordance with work safety and health requirements and regulations. They should also be able to maintain sound equipment and system.

**Stage Craft and Staging Systems**
On completion of the module, students should be able to interpret staging and set documents, set up, test and operate staging systems live and online performances in accordance with work safety and health requirements and regulations. They should also be able to fabricate the necessary items in line with the creative direction of the performance production.

**Visual Multimedia**
On completion of the module, students should be able to set up, test and program visual multimedia equipment live and online performances in accordance with work safety and health requirements and regulations.

**Lighting for Production II**
On completion of the module, students should be able to execute programming of the lighting desk, use lighting software to create lighting effects and documents for live and online performance production.

**Sound for Production II**
On completion of the module, students should be able to set up and operate digital audio workstations to record and edit sound for a live and online performance production.

**Industry Attachment**
On completion of the module, students should be able interpret production documents, set up and operate the production systems, assist in backstage management so as to ensure efficient and smooth running of a production in accordance with the company’s standards and practices.

**Electives (Course Specific)**

**Stage Effects**
On completion of the module, students should be able to illustrate and set up stage effects equipment in accordance with work safety and health requirements and regulations.

**Electives (General)**
As reflected on pages 300-301.

**Life Skills Modules**
As reflected on page 304.
HIGHER NITEC IN VISUAL EFFECTS

COURSE SYNOPSIS

On completion of the course, students should be able to

- Plan production work.
- Develop 3D assets.
- Perform lighting and rendering.
- Create mattes.
- Perform effects simulation.
- Perform rotoscoping.
- Perform video compositing.

JOB OPPORTUNITIES

*Higher Nitec* in Visual Effects graduates are employed by companies in the post-production, broadcasting, film, games, design and media sectors. They perform work involving video editing, 3D modelling and lighting, rotoscoping, matchmoving and compositing. Some of the job titles held by graduates at entry level include Digital Matte Painter, Video Editor, Roto Artist, Matchmovers Junior Compositor and Junior Visual Effects Artist.

There are excellent opportunities for career advancement to supervisory positions and beyond.

The typical career progression path for a Visual Effects artist could include:

Junior Visual Effects Artist ➔ Senior Visual Effects Artist ➔ CG Supervisor ➔ Technical Director.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Modules</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>Core Modules</td>
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<tr>
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<tr>
<td>Elective Modules</td>
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<td><strong>Total</strong></td>
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Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.

COURSE STRUCTURE

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
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</tr>
<tr>
<td>Digital Effects Essentials</td>
<td>7</td>
</tr>
<tr>
<td>3D Modelling</td>
<td>7</td>
</tr>
<tr>
<td>Texturing, Lighting and Rendering</td>
<td>7</td>
</tr>
<tr>
<td>Digital Sculpting</td>
<td>7</td>
</tr>
<tr>
<td>Matchmoving and Rotoscoping</td>
<td>7</td>
</tr>
<tr>
<td>Dynamic FX</td>
<td>7</td>
</tr>
<tr>
<td>Compositing</td>
<td>6</td>
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<tr>
<td>Industry Attachment</td>
<td>4</td>
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<tr>
<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
<td></td>
</tr>
<tr>
<td>Introduction to Procedural Modelling</td>
<td>4</td>
</tr>
<tr>
<td>Creative Production</td>
<td>2</td>
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<tr>
<td><strong>ELECTIVES (GENERAL)</strong></td>
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<tr>
<td>Refer to pages 300-301</td>
<td></td>
</tr>
<tr>
<td><strong>LIFE SKILLS MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to page 304</td>
<td></td>
</tr>
</tbody>
</table>
MODULE OBJECTIVES

Core Modules

Digital Effects Essentials
On completion of the module, students should be able to apply the workflow of production techniques based on industry workflow. This module covers the creation of fundamental of 3D modelling, lighting, rendering and compositing.

3D Modelling
On completion of the module, students should be able to create hard surface and organic 3D elements. This module covers the creation of 3D elements and renders them into the appropriate file format.

Texturing, Lighting and Rendering
On completion of the module, students should be able to produce apply good techniques of texturing and lighting. They should also be able to perform rendering of photo realistic Computer Graphics scene.

Digital Sculpting
On completion of the module, students should be able to create detailed 3D model using advanced sculpting tools and techniques. They should also be able to perform complex surface details and rendering.

Matchmoving and Rotoscoping
On completion of the module, students should be able to create 2D/3D camera tracking effectively and integrating live action footage with computer graphic elements. They should also be able to perform compositing and apply the techniques of rotoscoping and matte extraction.

Dynamic FX
On completion of the module, students should be able to apply the techniques and workflow in creating dynamic visual effects animation.

Compositing
On completion of the module, students should be able to perform video compositing by applying techniques such compositing visual elements, colour correction and grading.

Industry Attachment
On completion of the module, students should be able to apply and integrate the skills and knowledge that they have acquired to the industry and would have gained relevant work experience.

Electives (Course Specific)

Introduction to Procedural Modelling
On completion of the module, students should be able to create procedural models through the Node-based system in the software.

Creative Production
On completion of this module, students should be able to produce video clips using appropriate production and post-production techniques.

Electives (General)
As reflected on pages 300-301.

Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN VISUAL MERCHANDISING

COURSE SYNOPSIS

On completion of the course, students should be able to

- Keep up with retail market trend to ensure that the display is current and congruent with trend and store image.
- Develop visual display plan.
- Execute visual display plan.
- Create appealing display environment.
- Create signage and graphics.
- Produce props.
- Maintain retail display.

JOB OPPORTUNITIES

Higher Nitec in Visual Merchandising graduates are employed by the retail or service establishments, such as department stores, shopping malls, and specialty stores. They perform a crucial role in ensuring that the window and in-store displays are designed and implemented according to market and fashion trends. Some of the job titles held by graduates include Visual Merchandiser, Display Artist, Retail Stylist and Visual Exhibition Designer. There are excellent opportunities for career advancement to supervisory positions and beyond.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Core Modules</td>
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<td><strong>Total</strong></td>
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</tr>
</tbody>
</table>

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**MODULE OBJECTIVES**

**Core Modules**

**Arts & Design**
On completion of the module, students should be able to apply the fundamental drawing techniques to express their perception of forms using various mediums. They should also be able to apply design elements and principles into compositions that creatively express their ideas.

**Communication at Work**
On completion of the module, students should be able to handle oral and written communication effectively in a workplace environment as well as in any social and business settings.

**Visual Merchandising Graphics**
On completion of the module, students should be able to apply different types of material used and the application of visual graphics to affect consumer's choice. Students should also be able to apply the basic knowledge of drawing and editing software to create and retouch graphics for the production of signage and graphics.

**Retail Marketing**
On completion of the module, students should be able to apply the core principles and practices of marketing in a retail context and to identify the retail marketing mix, consumer buying behaviour, current retail trends and strategies.

**Visual Merchandising Design**
On completion of the module, students should be able to apply display techniques to the design of the product presentation that is cohesive with marketing strategies. Students should also be able to make use of environment, lighting, fixtures and forms to enhance the presentation.

**Retail Space Design**
On completion of the module, students should be able to apply the knowledge of space design, retail space techniques and principles to reinforce branding and enhance retail experiences.

**Applied Visual Merchandising**
On completion of the module, students should be able to analyse the current presentation practices and techniques, methodology, themes and inherent qualities of varying classifications of merchandise and translate them into studio setups which include propping and showcase display.

**Industry Attachment**
Students will undergo a 3-month attachment in visual merchandising industry or work on an industry-based project. On completion of the module, students will gain experience and insights in the working environment. Students will apply the principles and elements of visual merchandising to conceptualise and execute a visual merchandising design. Students should be able to develop action plan, determine resources to carry out the plan and present their work confidently within the stated timelines.

**Electives (General)**
As reflected on pages 300-301.

**Life Skills Modules**
As reflected on page 304.
NITEC IN ARCHITECTURAL TECHNOLOGY

COURSE SYNOPSIS

On completion of the course, students should be able to

- Produce design drawings.
- Produce building CAD drawings.
- Construct architectural space model.
- Develop architectural space planning and design.
- Develop architectural design proposal.
- Generate architectural construction drawings and detailing.
- Generate architectural submission package.

JOB OPPORTUNITIES

Nitec in Architectural Technology graduates are employed by government departments, statutory boards and private companies in the building and construction sector. Some of the job titles held by graduates include Architectural Technical Coordinator, Architectural Technician, and Technical Assistant. There are excellent opportunities for career advancement to supervisory positions.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>Core Modules</td>
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<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
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</tr>
<tr>
<td>Spatial Visualisation Drawing</td>
<td>6</td>
</tr>
<tr>
<td>Building CAD Drawing</td>
<td>6</td>
</tr>
<tr>
<td>BIM Presentation</td>
<td>6</td>
</tr>
<tr>
<td>Architectural Spatial Planning</td>
<td>6</td>
</tr>
<tr>
<td>Architectural Design and Visualisation</td>
<td>7</td>
</tr>
<tr>
<td>Building Construction and Drawing</td>
<td>6</td>
</tr>
<tr>
<td>Architectural Submission</td>
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</tr>
<tr>
<td>Industry Attachment</td>
<td>4</td>
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<tr>
<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
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</tr>
<tr>
<td>Model Making</td>
<td>2</td>
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<tr>
<td>Prefabricated Construction Drawing</td>
<td>2</td>
</tr>
<tr>
<td>Construction Quality Assessment System</td>
<td>2</td>
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<tr>
<td><strong>ELECTIVES (GENERAL)</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to pages 302-304</td>
<td></td>
</tr>
<tr>
<td><strong>LIFE SKILLS MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to page 304</td>
<td></td>
</tr>
</tbody>
</table>
MODULE OBJECTIVES

Core Modules

Spatial Visualisation Drawing
On completion of the module, students should be able to apply the principles of drawing and composition to produce basic sketches, orthographic drawings, and perspective drawings with scale and proportion.

Building CAD Drawing
On completion of the module, students should be able to apply the knowledge of orthographic drawing and architectural drawing conventions to prepare a set of building drawings using relevant computer software.

BIM Presentation
On completion of the module, students should be able to construct a 3D building model complete with architectural elements and finishes using relevant BIM software.

Architectural Spatial Planning
On completion of the module, students should be able to apply principles of architectural space planning to develop zoning plans of different types of building developments and produce a set of building drawings.

Architectural Design and Visualisation
On completion of the module, students should be able to apply the knowledge of current building regulations to develop building design and construct 3D model, complete with architectural elements and finishes, and complying with relevant regulatory requirements.

Building Construction and Drawing
On completion of the module, students should be able to apply the knowledge of current building regulations and applicable construction technologies to prepare sets of building construction drawings and detail drawings of various building components.

Architectural Submission
On completion of the module, students should be able to apply knowledge of relevant authority requirements to generate BIM models and documentation for submission to local regulatory authorities.

Industry Attachment
On completion of the module, students should be able to apply and integrate the technical, social and methodological competencies in carrying out related industry project.

Electives (Course Specific)

Model Making
On completion of the module, students should be able to construct an architectural/interior/exhibition presentation model.

Prefabricated Construction Drawing
On completion of the module, students should be able to draw simple structural system illustrative drawings of connecting joints for prefabricated components, which include preliminary and general design consideration.

Construction Quality Assessment System
On completion of the module, students should be equipped with knowledge and skills in quality management of construction projects to achieve better CONQUAS score.

Electives (General)
As reflected on pages 302-304.

Life Skills Modules
As reflected on page 304.
NITEC IN DIGITAL ANIMATION

COURSE SYNOPSIS

On completion of the course, students should be able to

• Conduct research on pre-production in the art department.
• Create art to illustrate environment and backgrounds to support production.
• Create textures for application to background and prop models.
• Create simple skeletal and prop rigs for 3D models of characters.
• Execute pre-lighting and post-processing lighting for animation.
• Create 3D animated sequences to support the development of 3D animated media.

JOB OPPORTUNITIES

Nitec in Digital Animation graduates are employed in various fields, including new media studios, film production houses, games and media sectors. Some of the job titles held by graduates include Junior Digital Artist, Junior Computer Graphic (CG) Artist, Junior Animator, Junior Modeller, Junior Concept Artist, Junior Character Designer and Junior Storyboard Artist. There are excellent opportunities for career advancement to character animator positions and beyond.

CERTIFICATION

Credits required for certification:

| Core Modules       | 46 |
| Life Skills Modules| 10 |
| Elective Modules   |  6 |
| Total              | 62 |

COURSE STRUCTURE

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
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</tr>
<tr>
<td>Drawing for Animation</td>
<td>6</td>
</tr>
<tr>
<td>3D Modeling</td>
<td>6</td>
</tr>
<tr>
<td>Advanced 3D Modeling</td>
<td>6</td>
</tr>
<tr>
<td>Principles of Animation</td>
<td>6</td>
</tr>
<tr>
<td>3D Animation</td>
<td>6</td>
</tr>
<tr>
<td>Creative Production</td>
<td>6</td>
</tr>
<tr>
<td>Portfolio</td>
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<tr>
<td>Industry Attachment</td>
<td>4</td>
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<tr>
<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
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<tr>
<td>Clay Sculpting</td>
<td>3</td>
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<tr>
<td>Introduction to Post Production</td>
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<tr>
<td>Gesture Drawing for Animation</td>
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<td><strong>ELECTIVES (GENERAL)</strong></td>
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<tr>
<td>Refer to pages 302-304</td>
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<tr>
<td><strong>LIFE SKILLS MODULES</strong></td>
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<tr>
<td>Refer to page 304</td>
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</tbody>
</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Drawing for Animation
On completion of the module, students should be able to apply the basic principles of form, composition, shapes and color to create character, key layout and background designs.

3D Modeling
On completion of the module, students should be able to perform 3D asset creation involving modeling, texturing, rigging, lighting and rendering.

Advanced 3D Modeling
On completion of the module, students should be able to produce a digital sculpture, reconstructing it for production with the necessary texture, material, rig, pose and render.

Principles of Animation
On completion of the module, students should be able to apply the principles of animation to the drawing of key poses in action. They are able to animate using key poses for objects and characters and perform lip sync and body movement for the characters.

3D Animation
On completion of the module, students should be able to animate according to a style and a particular staging. They are trained in character animation, body mechanics, acting for animation to create a series of 3D animated shots.

Creative Production
On completion of the module, students should be able to create an animated content applying the concepts of storyboarding and principles of animation. They will learn to bring an idea from conception to realization, incorporating the knowledge and skills learned into this project development.

Portfolio
On completion of the module, students should be able to apply all the acquired knowledge throughout the course to produce a demo reel such as 3D model turntable, character and creature models and animation in their portfolio.

Industry Attachment
On completion of the module, students should be able to apply and integrate the technical, social and methodological competencies in carrying out related industry project and handle project management, perform production-related tasks within a given deadline.

Electives (Course Specific)

Clay Sculpting
On completion of the module, students should be able to design and construct characters based on the given human, animal or inanimate subjects. They should be able to develop a background history of their characters. The students are also trained on the function of a model sheet, to create different views of their character design and apply colours to them. They will then go hands-on to reproduce their 2D design into a 3D sculpted artwork.

Introduction to Post Production
On completion of the module, students should be able to identify the flow of video, and use basic video/audio editing and compositing techniques such as applying various cuts, transitions, music, sound effects and text effects to package their animation for an audience.

Gesture Drawing for Animation
On completion of the module, students should be able to do quick sketches of key poses of life characters, with emphasis on the line quality of the human poses or gestures. Students are trained to apply the line of action, weight, structure, volume, balance, rhythm, and proportion in their short sketches.

Electives (General)
As reflected on pages 302-304.

Life Skills Modules
As reflected on page 304.
NITEC IN FASHION APPAREL PRODUCTION & DESIGN

COURSE SYNOPSIS

On completion of the course, students should be able to

• Construct a garment.
• Evaluate sample for fit (alteration).
• Develop draft patterns for an outfit.
• Analyse fabric characteristics.
• Drape to create 3D garment.
• Translate 2D illustration.
• Identify industry sewing machine faults.
• Perform quality control.

JOB OPPORTUNITIES

Nitec in Fashion Apparel Production & Design graduates are employed in fashion houses, department stores and apparel manufacturers. Graduates can pursue careers in the areas of sample creation, apparel production, merchandising, retail and fashion design. Some of the job titles held by graduates include Prototype Maker, Pattern Maker and Sample Sewer.

CERTIFICATION

Credits required for certification:

| Core Modules       | 46 |
| Life Skills Modules| 10 |
| Elective Modules   |  4 |
| **Total**          | 60 |

COURSE STRUCTURE

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
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<tr>
<td>Fashion Visualisation</td>
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<tr>
<td>Apparel Construction for Women’s Wear</td>
<td>6</td>
</tr>
<tr>
<td>Textile Fundamentals</td>
<td>6</td>
</tr>
<tr>
<td>Apparel Construction for Menswear</td>
<td>6</td>
</tr>
<tr>
<td>3D Draping Creation</td>
<td>6</td>
</tr>
<tr>
<td>Fashion Design Practice</td>
<td>6</td>
</tr>
<tr>
<td>Fashion Production</td>
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</tr>
<tr>
<td>Industry Attachment</td>
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<tr>
<td><strong>ELECTIVES (INTER-DISCIPLINARY)</strong></td>
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<tr>
<td>Print Making Fundamentals</td>
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<td><strong>ELECTIVES (GENERAL)</strong></td>
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<tr>
<td>Refer to pages 302-304</td>
<td></td>
</tr>
<tr>
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<td></td>
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<tr>
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</tr>
</tbody>
</table>

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MODULE OBJECTIVES

**Core Modules**

**Fashion Visualisation**
On completion of the module, students should be able to apply the skills and knowledge of creative and practical processes in design development and presentation used in the fashion industry. They should be able to produce and present fashion sketching and technical drawings through digital imaging software.

**Apparel Construction for Women’s Wear**
On completion of the module, students should be able to create a three-dimensional garment from a two-dimensional design that shapes and fits well on a female moving body. They will be able to apply a wide range of pattern making and garment production techniques in making woven items such as skirts, dresses, pants, jackets and gowns.

**Textile Fundamentals**
On completion of the module, students should be able to perform a variety of testing on fibres, yarns and garments in order to select the most appropriate fabric for the end-use of the garment. Students should also be able to create interesting textures on fabric through various surface treatment by applying hand stitch and machine stitch methods.

**Apparel Construction for Menswear**
On completion of the module, students should be able to produce menswear garments for various occasions. They will be able to make pattern draft and construct for menswear such as shirts, trousers, vest and jackets. Students should also be able to manage specialised sewing machines for construction of knit wear items.

**3D Draping Creation**
On completion of the module, students should be able to manipulate, mould and shape fabrics until the design is simulated in a three-dimensional form. The finished draped garment is further translated into flat patterns for mass production.

**Fashion Design Practice**
On completion of the module, students should be able to adopt a personal approach to fashion design through the generation of ideas using a range of research skills and creative techniques. In the development process, students will interpret research findings to create a theme-based fashion collection.

**Fashion Production**
On completion of the module, students should be able to apply appropriate technical skills in producing a range of garments of a theme-based fashion collection. They will also be able to enhance quality standards of the garments by refining workmanship in garment construction, fitting and alteration.

**Industry Attachment**
Students will undergo a 3-month attachment in apparel production industry or work on an industry-based project. On completion of the module, students will gain experience and insights in the working environment. Students will integrate and extend their skills and knowledge in the working environment. Students should be able to perform research for design references, identify resources and present their work confidently within the stated timelines.

**Electives (Inter-disciplinary)**

**Print Making Fundamentals**
On completion of the module, students should be able to perform duplication techniques as an art medium and to explore their creativity using texture.

**Electives (General)**
As reflected on pages 302-304.

**Life Skills Modules**
As reflected on page 304.
**NITEC IN INTERIOR & EXHIBITION DESIGN**

**COURSE SYNOPSIS**

On completion of the course, students should be able to

- Produce design drawings.
- Produce building CAD drawings.
- Produce interior space modelling.
- Develop interior space planning and design.
- Develop interior design proposal.
- Generate interior construction and furnishing.
- Examine interior design portfolio.

**JOB OPPORTUNITIES**

Nitec in Interior & Exhibition Design graduates are employed by government departments, statutory boards and private companies in the building and construction sector. They perform a crucial role of ensuring the layout plans, construction drawings, presentation drawings, illustrations and graphics are produced for tenders, and construction, and presentation packages for communicating designer's concepts and ideas to clients. Some of the job titles held by graduates include Interior Designer, Junior Designer, and Assistant Exhibition Designer. There are excellent opportunities for career advancement to supervisory positions.

**CERTIFICATION**

Credits required for certification:

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
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<tr>
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<tr>
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<table>
<thead>
<tr>
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<td>Spatial Visualisation Drawing</td>
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</tr>
<tr>
<td>Building CAD Drawing</td>
<td>6</td>
</tr>
<tr>
<td>Interior Space Modelling</td>
<td>6</td>
</tr>
<tr>
<td>Space Planning and Design</td>
<td>7</td>
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<tr>
<td>Interior Design Proposal</td>
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<tr>
<td>Construction and Detailing</td>
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<td>Interior Design Portfolio</td>
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<td>Industry Attachment</td>
<td>4</td>
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<tr>
<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
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</tr>
<tr>
<td>Model Making</td>
<td>2</td>
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<tr>
<td>Prefabricated Construction Drawing</td>
<td>2</td>
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<tr>
<td>Construction Quality Assessment System</td>
<td>2</td>
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<tr>
<td><strong>ELECTIVES (GENERAL)</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to pages 302-304</td>
<td></td>
</tr>
<tr>
<td><strong>LIFE SKILLS MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to page 304</td>
<td></td>
</tr>
</tbody>
</table>

*Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.*
MODULE OBJECTIVES

Core Modules

Spatial Visualisation Drawing
On completion of the module, students should be able to apply the principles of drawing and composition to produce basic sketches, orthographic drawings, and perspective drawings with scale and proportion.

Building CAD Drawing
On completion of the module, students should be able to apply the knowledge of orthographic drawing and architectural drawing conventions to prepare a set of building drawings using relevant computer software.

Interior Space Modelling
On completion of the module, students should be able to use digital skills and knowledge to create an interior space model with colour scheme, appropriate lighting application as well as material and finishes.

Space Planning and Design
On completion of the module, students should be able to produce interior space planning and layout with the knowledge of spatial as well as work requirements of interior spaces.

Interior Design Proposal
On completion of the module, students should be able to develop, design and produce an interior design proposal with a concept/theme as well as application of materials, furniture, fixtures and colours.

Construction and Detailing
On completion of the module, students should be able to prepare fundamental set of construction drawings, select construction details and furniture, furnishing and equipment specifications for selected interior spaces.

Interior Design Portfolio
On completion of the module, students should be able to apply the skills and knowledge related to various types and requirements of interior spaces, as well as recognise some key design issue, problems and intent use to address design of interior spaces.

Industry Attachment
Students will undergo a 3-month industry attachment with building construction and design companies where they will apply learned skills related to the planning, design, construction and presentation of interior spaces in a real work environment.

Electives (Course Specific)

Model Making
On completion of the module, students should be able to construct an architectural/interior/exhibition presentation model.

Prefabricated Construction Drawing
On completion of the module, students should be able to draw simple structural system illustrative drawings of connecting joints for prefabricated components, which include preliminary and general design consideration.

Construction Quality Assessment System
On completion of the module, students should be equipped with knowledge and skills in quality management of construction projects to achieve a better CONQUAS score.

Electives (General)
As reflected on pages 302-304.

Life Skills Modules
As reflected on page 304.
**NITEC IN PRODUCT DESIGN**

**COURSE SYNOPSIS**

On completion of the course, students should be able to

- Source for information.
- Conduct design research.
- Conduct material research and selection.
- Prepare presentation materials.
- Produce conceptual sketches of products.
- Fabricate mock ups and models.
- Produce 2D and 3D CAD models.
- Fabricate prototype model.
- Prepare design presentation.
- Co-ordinate and validate production and design integrity.

**JOB OPPORTUNITIES**

*Nitec in Product Design graduates are employed by companies in the creative industries. Some of the job titles held by graduates include Assistant Product Designer, Product Illustrator and CAD Modeller. The strong foundation in creative skills, technical proficiency, social and environmental understanding and a keen insight into customers, supports a design professional with a wide choice of rewarding career options to look forward to.*

**CERTIFICATION**

Credits required for certification:

<table>
<thead>
<tr>
<th>Core Modules</th>
<th>46</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Skills Modules</td>
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<td>Elective Modules</td>
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<tr>
<td><strong>Total</strong></td>
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</tbody>
</table>

**COURSE STRUCTURE**

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Design Foundation Studio</td>
<td>6</td>
</tr>
<tr>
<td>Computer Aided Design</td>
<td>6</td>
</tr>
<tr>
<td>Digital Essentials &amp; Corporate Styling</td>
<td>6</td>
</tr>
<tr>
<td>Materials Exploration</td>
<td>6</td>
</tr>
<tr>
<td>Design for Manufacturing &amp; Assembly</td>
<td>6</td>
</tr>
<tr>
<td>Design Studio 1</td>
<td>6</td>
</tr>
<tr>
<td>Design Studio 2</td>
<td>6</td>
</tr>
<tr>
<td>Industry Attachment</td>
<td>4</td>
</tr>
<tr>
<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
<td></td>
</tr>
<tr>
<td>Packaging Design and Branding</td>
<td>2</td>
</tr>
<tr>
<td>Pottery Fundamentals</td>
<td>2</td>
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<tr>
<td><strong>ELECTIVES (INTER-DISCIPLINARY)</strong></td>
<td></td>
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<tr>
<td>Digital Portfolio</td>
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<tr>
<td><strong>ELECTIVES (GENERAL)</strong></td>
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<tr>
<td>Refer to pages 302-304</td>
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<td></td>
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<tr>
<td>Refer to page 304</td>
<td></td>
</tr>
</tbody>
</table>

*Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.*
MODULE OBJECTIVES

Core Modules

Design Foundation Studio
On completion of the module, students should be able to apply visual thinking, create design visualisation, perform freehand design sketching and three-dimensional rendering. This module also emphasise hands-on practices to enhance students’ creative thinking abilities from working with basic lines and curves to two-dimensional sketches and thumbnails.

Computer Aided Design
On completion of this module, students should be able to generate concepts on screen using Computer Aided Design (CAD) tools. Student will create 3D concept visualisation using CAD tools, execute and manipulate the desired outcome to convey ideas within the CAD environment.

Digital Essentials & Corporate Styling
On completion of the module, students should be able to present and communicate design solution, apply design principles and art direction. Students will also learn presentation techniques and digital imaging, from photos editing to graphics illustration, for digital marketing campaigns.

Materials Exploration
On completion of this module, students should be able to perform model making as a mean of design exploration. Students will learn various processes and techniques suitable for a variety of materials, to create products and models. There will be opportunities for students to lead workshops for school community.

Design for Manufacturing & Assembly
On completion of the module, students should be able to identify different types of materials and the suitable manufacturing techniques. Students will also learn the classification and types of materials, their properties, applications and selection of these materials for product design.

Design Studio 1
On completion of the module, students should be able to undertake group and individual projects with the aim to design, produce and market a range of objects. Students will create prototype and craft a design brief that includes feasibility study. Students are required to plan the use of materials, part drawings, production methods, sequence of finishing and graphics.

Design Studio 2
On completion of the module, students should be able to design for businesses and apply principle of entrepreneurship. Students will also learn to use design process to create products and experiences that are relevant, in demand and commercially viable.

Industry Attachment
Students will undergo a 3-month industry attachment or work on a design project from the industry. On completion of the module, students should be able to apply the skills and knowledge acquired to take on a range of job scope at the workplace. Students will apply the principles of product design, to conceptualise and execute a design project. Students should be able to develop concept specifications, determine finishing and materials to carry out the design, and present their work to clients confidently within the stated timelines.

Electives (Course Specific)

Packaging Design and Branding
On completion of the module, students should be able to use design principle to develop a branding trademark/logo and packaging design for their new product while working in cooperative group.

Pottery Fundamentals
On completion of the module, students should be able to utilise the basic tools, materials and techniques in pottery. Through this elective, students are able to explore the relationship between space and form by observing and manipulating materials, weight, texture and volume.

Electives (Inter-disciplinary)

Digital Portfolio
On completion of the module, students should be able to create a resume and develop a digital portfolio that will best represent their works in a creative and professional manner while leveraging various media platforms that are relevant.

Electives (General)
As reflected on pages 302-304.

Life Skills Modules
As reflected on page 304.
**NITEC IN VIDEO PRODUCTION**

**COURSE SYNOPSIS**

On completion of the course, students should be able to

- Set up and operate camera equipment.
- Set up and operate lighting equipment.
- Assist with planning and execution of the various aspects of video production across the different departments.
- Perform video editing.
- Perform sound recording.

**JOB OPPORTUNITIES**

_Nitec in Video Production_ graduates are employed by companies as Camera Operator (Multi-cam, Single-cam), Videographer, Lighting Technician, Sound Recordist, Vision Mixer, Control Room Assistant, Studio Assistant, Production Assistant, Assistant Editor and Drone operator to Jib Operator.

**CERTIFICATION**

Credits required for certification:

<table>
<thead>
<tr>
<th>Module Type</th>
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</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>Life Skills Modules</td>
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<tr>
<td>Elective Modules</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>61</strong></td>
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</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.

**COURSE STRUCTURE**

**Module Title** | **Credits**
--- | ---
**CORE MODULES** | 
Fundamentals of Video Production | 7
Video Post-Production | 7
Production Techniques | 6
Camera & Lighting Techniques | 6
Studio Production | 6
Location Field Production | 6
Project | 5
Industry Attachment | 4

**ELECTIVES (COURSE SPECIFIC)**

Storyboarding for Video Production | 2

**ELECTIVES (INTER-DISCIPLINARY)**

Lifestyle & Product Photography | 2
Motion Graphics | 2

**ELECTIVES (GENERAL)**

Refer to pages 302-304

**LIFE SKILLS MODULES**

Refer to page 304

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
**MODULE OBJECTIVES**

**Core Modules**

**Fundamentals of Video Production**
On completion of the module, students should be able to interpret scripts for various types of video production and be able to perform basic pre-production. Students will also be able to perform fundamental camera operation, three-point lighting and sound recording for single-camera productions.

**Video Post-Production**
On completion of the module, students should be able to import files, manage media files and perform non-linear video editing according to script. Students will also be able to perform basic colour balancing for the video images and perform audio levelling and equalisation for the final mix-down.

**Production Techniques**
On completion of the module, students will be able to use appropriate video production accessories and supporting equipment for single-camera video production. They will be able to monitor and record audio with an audio mixer. They will also be able to manage basic production budget and carry out casting audition and location management.

**Camera & Lighting Techniques**
On completion of the module, students should be able to utilise various video camera systems. They should be able to handle sophisticated video equipment, camera accessories and to apply advanced lighting techniques for various types of video production.

**Studio Production**
On completion of the module, students should be able to plan, set up, operate and produce a video within a television broadcast studio and multi-camera production environment. Students should be able to execute these tasks as part of a team in a portable and mobile setup.

**Location Field Production**
On completion of the module, student should be able to assess the location/scenario and determine the appropriate production techniques to be used. They should also be able to recommend appropriate equipment to carry out small team location productions and multi-cam event productions.

**Project**
On completion of the module, students should be able to produce a basic script, storyboard, budget and carry out the production by taking on active roles as Producer, Camera Operator, Lighting Crew, Sound Man and Video Editor. Projects can range from Corporate, Marketing, Infotainment, Social Media to Events. The project module will cover all aspects of the video production processes.

**Industry Attachment**
Students will undergo a three-month industry attachment and apply video production techniques suitable for corporate videos, event videos or entertainment programmes.

**Electives (Course Specific)**

**Storyboarding for Video Production**
On completion of the module, students should be able to create a storyboard to visualise camera angles, perspective and how the shots are connected to form a story for production.

**Electives (Inter-disciplinary)**

**Lifestyle & Product Photography**
On completion of the module, students should be able to think, analyse, conceptualise and execute a lifestyle product photo shoot.

**Motion Graphics**
On completion of the module, students should be able to apply their graphics practice to the dimension of time, animation, key framing and movement.

**Electives (General)**
As reflected on pages 302-304.

**Life Skills Modules**
As reflected on page 304.
NITEC IN VISUAL COMMUNICATION

COURSE SYNOPSIS

On completion of the course, students should be able to

- Produce drawings.
- Produce design artworks.
- Perform digital imaging.
- Create illustrative images.
- Perform digital photography.
- Develop final artwork for output.
- Design pictograms.
- Create layout and composition.
- Perform press checks.
- Develop packaging.
- Make client presentations.

JOB OPPORTUNITIES

Nitec in Visual Communication graduates are employed as Graphic Artist, Graphic Designer, Digital Artist, Illustrator and Assistant Photographer for companies in advertising, corporate branding, graphic design, photography and multimedia solutions. There are excellent opportunities for career development and advancements to supervisory positions and beyond.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
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<td>Life Skills Modules</td>
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COURSE STRUCTURE

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<td><strong>CORE MODULES</strong></td>
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<tr>
<td>Drawing Fundamentals</td>
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<tr>
<td>Design Principles</td>
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<tr>
<td>Applied Photography</td>
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<tr>
<td>Digital Imaging</td>
<td>6</td>
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<tr>
<td>Graphics &amp; Typography</td>
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<tr>
<td>Prepress Technology</td>
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<tr>
<td>Packaging Design</td>
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<tr>
<td>Industry Attachment</td>
<td>4</td>
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<tr>
<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
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<tr>
<td>Printmaking Fundamentals</td>
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<tr>
<td>Digital Illustration</td>
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<tr>
<td>Lifestyle &amp; Product Photography</td>
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<td>Digital Portfolio</td>
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<tr>
<td><strong>ELECTIVES (GENERAL)</strong></td>
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<tr>
<td>Refer to pages 302-304</td>
<td></td>
</tr>
<tr>
<td><strong>LIFE SKILLS MODULES</strong></td>
<td></td>
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<tr>
<td>Refer to page 304</td>
<td></td>
</tr>
</tbody>
</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Drawing Fundamentals
On completion of the module, students should be able to apply the fundamental drawing techniques to express their perception of forms using various mediums.

Design Principles
On completion of the module, students should be able to interpret design briefs and apply design elements like form, shapes, lines, colour, and type into compositions that creatively meet client’s requirements.

Applied Photography
On completion of the module, students should be able to determine proper camera settings, capture shots, utilise various photographic equipment and export images in the appropriate format and resolution using basic digital manipulation techniques.

Digital Imaging
On completion of the module, students should be able to create graphics and illustrations using digital imaging software. Students will also be able to digitally manipulate and retouch images according to the specific styles and genres required.

Graphics & Typography
On completion of the module, students should be able to create pictograms and apply effective typography onto design layouts and compositions using software programs.

Prepress Technology
On completion of the module, students should be able to perform press check and develop artworks for final output in desktop publishing.

Packaging Design
On completion of the module, students should be able to design and develop innovative packaging using various forms and materials while demonstrating knowledge of effective packaging concepts and techniques.

Industry Attachment
Students will undergo a 3-month attachment in the graphic design or print production industry, or work on an industry-based project. On completion of the module, students will gain experience and insights into the working environment. Students will apply the principles and techniques of visual communication and assist in producing communication collaterals in various formats. Students should be able to perform research for design references, identify resources and present their work confidently within the stated timelines.

Electives (Course Specific)

Printmaking Fundamentals
On completion of the module, students should be able to understand the outcome and possibilities of using duplication as an art medium and to explore their creativity using texture.

Digital Illustration
On completion of the module, students should be able to illustrate and paint using imaging editing software.

Lifestyle & Product Photography
On completion of the module, students should be able to analyse, conceptualise and execute a lifestyle product photo shoot.

Digital Portfolio
On completion of the module, students should be able to create a resume and develop a digital portfolio that will best represent their works in a creative and professional manner while leveraging various media platforms that are relevant.

Electives (General)
As reflected on pages 302-304.

Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN AI APPLICATIONS

COURSE SYNOPSIS

On completion of the course, students should be able to

- Perform data preparation.
- Develop AI solutions.
- Perform project management.

JOB OPPORTUNITIES

Higher Nitec in AI Applications graduates are employed by government and private sectors. Some of the job titles may include Associate AI Engineer, Associate ML Engineer, Associate Data Scientist and AI Technician.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Modules</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
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<td>Life Skills Modules</td>
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<td>Cross Disciplinary Core Modules</td>
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<td><strong>Total</strong></td>
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COURSE STRUCTURE

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<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
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<tr>
<td><strong>CORE MODULES</strong></td>
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<tr>
<td>Coding for AI</td>
<td>3</td>
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<tr>
<td>AI Ethics &amp; Bias</td>
<td>3</td>
</tr>
<tr>
<td>Software Development Practices</td>
<td>3</td>
</tr>
<tr>
<td>Programming Essentials</td>
<td>3</td>
</tr>
<tr>
<td>Mobile Application Programming</td>
<td>3</td>
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<tr>
<td>Computer Vision Essentials</td>
<td>3</td>
</tr>
<tr>
<td>Natural Language Processing Essentials</td>
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</tr>
<tr>
<td>Data for AI Essentials</td>
<td>3</td>
</tr>
<tr>
<td>AI Project Foundation</td>
<td>3</td>
</tr>
<tr>
<td>Computer Vision Applications</td>
<td>3</td>
</tr>
<tr>
<td>Service Robot Applications</td>
<td>3</td>
</tr>
<tr>
<td>Artificial Intelligence of Things (AIoT) Applications</td>
<td>3</td>
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<tr>
<td>AI Project Development</td>
<td>3</td>
</tr>
<tr>
<td>Industry Attachment</td>
<td>8</td>
</tr>
</tbody>
</table>

ELECTIVES (GENERAL)

Refer to pages 300-301

LIFE SKILLS MODULES

Refer to page 304

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules
Coding for AI
On completion of the modules, students should be able to experience the concepts of AI through no to low coding methods. Students will create basic program logic and AI model through fun and engaging project.

AI Ethics & Bias
On completion of the module, students should be able to apply their knowledge and skills in AI ethics, bias, security, intellectual properties, basic data science and industry requirements on recommended AI solutions.

Software Development Practices
On completion of the module, students should be able to apply their knowledge and skills in software development methods on recommended solutions.

Programming Essentials
On completion of the module, students should be able to apply fundamental programming concepts and computational thinking for basic programs.

Mobile Application Programming
On completion of the module, students should be able to configure software development environment, build user interface, integrate functions for interactivity and data processing, as well as publish application package onto mobile devices.

Computer Vision Essentials
On completion of the module, students should be able to apply their knowledge and skills in computer vision (CV). They will be able to acquire and process digital images by applying computer vision techniques.

Natural Language Processing Essentials
On completion of the module, students should be able to apply their knowledge and skills in natural language processing (NLP). They will be able to read, decipher and make sense of the human languages using NLP model.

Data for AI Essentials
On completion of the module, students should be able to apply their skills and knowledge to process and manipulate data. They should also be able to apply machine learning techniques to make predictions and evaluate the accuracy of AI models.

AI Project Foundation
On completion of the module, students should be able to plan and manage an AI project. They would provide AI solutions by leveraging on the knowledge and skills gained in the area(s) of data, natural language processing and computer vision.

Computer Vision Applications
On completion of the module, students should be able to apply their knowledge and skills in CV to analyse CV applications requirement, prepare CV application hardware and software, as well as to perform AI project such as drones and autonomous robot car.

Service Robots Applications
On completion of the module, students should be able to apply their knowledge and skills in NLP to analyse NLP applications requirement, prepare NLP application hardware and software, as well as to perform AI service robots’ applications.

Artificial Intelligence of Things (AIoT) Applications
On completion of the module, students should be able to apply their knowledge and skills in data to analyse data applications requirement, prepare data application hardware and software, as well as to perform AIoT applications.

AI Project Development
On completion of the module, students should be able to address a business problem and provide AI solution to resolve the issue, by leveraging on the knowledge and skills gained throughout the course.

Industry Attachment
On completion of the module, students should be able to integrate and apply the skills and knowledge acquired at ITE College, and further develop competencies at the workplace.

Electives (General)
As reflected on pages 300-301.

Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN BROADCAST & MEDIA TECHNOLOGY

COURSE SYNOPSIS

On completion of the course, students should be able to

- Handle incoming materials for broadcast.
- Manage playout system and operations.
- Manage master control room functions.
- Support maintenance of broadcasting equipment.
- Performing editing on broadcast-quality media.

JOB OPPORTUNITIES

Higher Nitec in Broadcast & Media Technology graduates are employed by the major broadcasting organizations, content aggregators and post-production companies. Some of the job titles held by graduates include Broadcast and Media Technical Specialist, Broadcast Operation Executive/Specialist, Media Ingestion/Contents Operator, Master Control Operators and Network Transmission Assistant.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Modules</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
<td>48</td>
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<td><strong>61</strong></td>
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</table>

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**MODULE OBJECTIVES**

**Core Modules**

Digital Media Ingestion
On completion of the module, students should be able to ingest media materials for broadcast and distribution. This module covers the principles of television, fundamentals of digital signal processing, and compression standards.

Video Streaming Essentials
On completion of the module, students should be able to apply the fundamentals of networking in relation to the Open System Interconnection (OSI) model. This module covers basic knowledge in IPv4 addressing, Video On Demand (VOD) servers and cyber security awareness.

Editing for Broadcast Standards
On completion of the module, students should be able to edit broadcast-quality media and convert it to various file formats for multi-platform delivery. This module covers media processing, technical editing methods and conversion of contents into multi-formats.

Programme Schedule Management
On completion of the module, students should be able to support playout system operations in monitoring scheduled programmes and perform first-line recovery. This module covers the broadcast distribution services, standards and components of digital video broadcasting system and automatic playout system.

Digital Media Services
On completion of the module, students should be able to implement file-based content workflows for digital media services such as, automatic QC and distribution of content via the Internet. This module covers the various services from content acquisition stage, archive and retrieval to multi-platform delivery.

Studio Control & Management
On completion of the module, students should be able to configure and operate studio broadcast equipment such as vision mixers, reference monitors and video recorders. They should also be able to perform preventive maintenance and troubleshoot broadcast equipment and its supporting systems.

**Industry Attachment**
On completion of the module, students should be able to apply and integrate the skills and knowledge that they have acquired at ITE College and develop competencies in other areas not covered in the curriculum, at the workplace.

**Electives (Inter-disciplinary)**

Project Management
On completion of the module, students should be able to plan, track and monitor projects using project management software.

Digital Media Marketing
On completion of the module, students should be able to develop the necessary technical competencies to develop digital assets to support marketing and branding initiatives.

**Electives (General)**
As reflected on pages 300-301.

**Life Skills Modules**
As reflected on page 304.
HIGHER NITEC IN BUSINESS INFORMATION SYSTEMS (2 YEARS)

COURSE SYNOPSIS

On completion of the course, students should be able to

- Manage computer systems and devices.
- Manage computer network.
- Support networked servers.
- Assist to manage virtualisation infrastructure.
- Support database management system.
- Assist support of business application development.
- Support and implement enterprise solutions.

JOB OPPORTUNITIES

Higher Nitec in Business Information Systems graduates may be employed by government departments, private sector companies and Independent Software Vendors (ISVs). There are opportunities for career advancement to supervisory positions and beyond. Graduates with good grades may progress to the diploma courses being offered in local polytechnics. Some of the job titles held by graduates include Business Information Systems Specialist, Associate Infrastructure Support Engineer and IT Technical Support Specialist.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
<td>27</td>
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<tr>
<td>Specialisation Modules</td>
<td>20</td>
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<tr>
<td>Life Skills Modules</td>
<td>9</td>
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<tr>
<td>Cross Disciplinary Core Modules</td>
<td>6</td>
</tr>
<tr>
<td>Electives</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>66</td>
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</tbody>
</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Networking Fundamentals
On completion of the module, students should be able to set up, configure, set up and troubleshoot wired and wireless network system for small office environment. They should be able to provide network support and configure devices such as switches and wireless access points.

System Software Essentials
On completion of the module, students should be able to install and configure operating system (OS) and application software on end user computing devices. In addition, they should also be able to perform OS maintenance and troubleshooting.

Computer Maintenance
On completion of the module, students should be able to perform installation and configuration of hardware components and peripherals of end user computing devices. In addition, they should also be able to perform end user computing devices maintenance and troubleshooting of hardware problems.

Networking Technology
On completion of the module, students should be able to apply the fundamentals of computer networking in relation to the OSI model. They should also be able to configure and set up wired and wireless local area network (LAN) including network segmentation. Students will also be able to perform network documentation and monitor network performance.

Enterprise Networking
On completion of the module, students should be able to configure and set up a switched and routed network with Virtual LANs (VLANs) as well as set up a wide area network (WAN), implement access control lists and troubleshoot common network issues and problems.

System Administration
On completion of the module, students should be able to set up server operating systems and perform system administration tasks such as user management, resource management and performance monitoring. Students should also be able to configure file server services and implement basic system security.

System Hardening & Infrastructure Services
On completion of the module, students should be able to perform server security hardening and manage infrastructure services. Students should also be able to automate server administration and implement high-availability systems.

Virtualisation Fundamentals
On completion of the module, students should be able to set up virtualisation server and environment. They should also be able to perform backup and recovery of VMs for fault tolerance. They should be able to perform basic troubleshooting with hypervisor and VMs.

Cloud System Administration
On completion of the module, students should be able to administer cloud / virtualisation platform and its associated services, monitor resource utilisation on the hypervisor, troubleshoot performance and connectivity issues as well as secure the cloud / virtualised infrastructure. They will also be introduced to commercially available cloud services, including containers and be able to utilise them.

Specialisation Modules

Database Essentials
On completion of this module, students should be able to perform data manipulation and manage database server, as well as create databases and extract information for business report generation.

Application Development
On completion of this module, students should be able to create secured software applications that connect to database.

Enterprise Systems Administration
On completion of the module, students should be able to install and configure Enterprise Resource Planning systems. In addition, they should be able to administer user accounts and customise user interfaces.

Enterprise Systems Process
On completion of the module, students should be able to set up and configure data migration for Enterprise Resource Planning systems. In addition, they should be able to set up and implement security policies, business processes, as well as support in business reporting function.
Industry Attachment
On completion of the modules, students should be able to integrate and apply a cluster of key technical, social and methodological competencies related to their field of study.

Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN CYBER & NETWORK SECURITY (2 YEARS)

COURSE SYNOPSIS

On completion of the course, students should be able to

- Manage end-user computer systems and devices.
- Manage computer network.
- Support networked servers.
- Assist to manage virtualisation infrastructure.
- Manage security infrastructure.
- Perform vulnerability assessment.
- Perform cyber security operations.

JOB OPPORTUNITIES

Higher Nitec in Cyber & Network Security graduates are employed in all public and private sector organisations to provide technical support for networks, systems and storage with an emphasis on IT security for business continuity in an enterprise IT cloud environment. Some of the job titles held by the graduates include Cyber Security Associate, Associate Security Administrator, Associate Security Engineer, Information Security Analyst, Information Security Associate, Information Security Officer and IT Security Specialist.

There are excellent opportunities for career advancement to supervisory positions and beyond.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Core Modules</th>
<th>27</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialisation Modules</td>
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<td>Life Skills Modules</td>
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<tr>
<td>Electives</td>
<td>4</td>
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<tr>
<td>Total</td>
<td>66</td>
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</tbody>
</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.

MODULE OBJECTIVES

Networking Fundamentals
On completion of the module, students should be able to set up, configure, set up and troubleshoot wired and wireless network system for small office environment. They should be able to provide network support and configure devices such as switches and wireless access points.

System Software Essentials
On completion of the module, students should be able to install and configure operating system (OS) and application software on end user computing devices. In addition, they should also be able to perform OS maintenance and troubleshooting.

CORE MODULES

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Networking Fundamentals</td>
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<td>System Software Essentials</td>
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<td>Computer Maintenance</td>
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<td>Networking Technology</td>
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<tr>
<td>Enterprise Networking</td>
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<td>System Administration</td>
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<td>System Hardening &amp; Infrastructure Services</td>
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<tr>
<td>Virtualisation Fundamentals</td>
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<tr>
<td>Cloud System Administration</td>
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</table>

SPECIALISATION MODULES

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
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<tr>
<td>Infrastructure Security</td>
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<tr>
<td>IT Security</td>
<td>3</td>
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<tr>
<td>Security Operations</td>
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<tr>
<td>Security Vulnerability Testing</td>
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</tr>
<tr>
<td>Industry Attachment</td>
<td>8</td>
</tr>
</tbody>
</table>

LIFE SKILLS MODULES

Refer to page 304
Computer Maintenance
On completion of the module, students should be able to perform installation and configuration of hardware components and peripherals of end user computing devices. In addition, they should also be able to perform end user computing devices maintenance and troubleshooting of hardware problems.

Networking Technology
On completion of the module, students should be able to apply the fundamentals of computer networking in relation to the OSI model. They should also be able to configure and set up wired and wireless local area network (LAN) including network segmentation. Students will also be able to perform network documentation and monitor network performance.

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Specialisation Modules
Infrastructure Security
On completion of the module, students should be able to configure firewall appliances, intrusion detection and prevention systems, firewall policies and set up Virtual Private Networks. They should also be able to implement appropriate technologies to protect against security attacks such as spams, spyware and worms/viruses including the set-up of end-point security measures.

IT Security
On completion of the module, students should be able to perform network intrusion detection, prevention and mitigation through the implementation of intrusion detection system. They should also be able to implement a secure network using Public Key Infrastructure technologies and set up a secure wireless network, as well as perform privilege identity management support functions.

Security Operations
On completion of the module, students should be able to take up tasks in the Security Operations Centre (SOC) environment including monitoring and identifying security risks, analysing and classifying security risks through security monitoring systems. They should also be able to apply appropriate counter measures to mitigate identified threats.

Security Vulnerability Testing
On completion of the module, students should be able to perform system and network scanning, vulnerability assessment and documentation of identified vulnerabilities. They should also be able to perform basic penetration testing and prepare appropriate test documentation.

Industry Attachment
On completion of the modules, students should be able to integrate and apply a cluster of key technical, social and methodological competencies related to their field of study.
Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN DATA ENGINEERING

COURSE SYNOPSIS

On completion of the course, students should be able to

- Extract data.
- Perform data cleansing.
- Perform data processing.
- Perform data visualization.
- Manage databases.

JOB OPPORTUNITIES

Higher Nitec in Data Engineering graduates can expect to embark on a career with government and private sectors that leverage data for businesses and operations. Some of the titles may include Associate Data Engineer, Associate Data Analyst, Data Technician, and Data Wranglers.

There are excellent opportunities for career advancement to supervisory positions and beyond.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
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<td>Life Skills Modules</td>
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<td>Elective Modules</td>
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<td>Total</td>
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</tbody>
</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.

MODULE OBJECTIVES

Core Modules

Database Concepts
On completion of the module, students should be able to create database objects with and edit data in tables. Students will be able to develop applications that utilise relational database concepts, such as relationships, indexes, and schemes.
Data Science Programming
On completion of the module, students should be able to apply fundamental programming concepts, computational thinking and data analysis techniques to solve real-world data science problems.

Data Extraction & Cleansing
On completion of the module, students should be able to apply data mining principles to the dissection of large complex data sets, including those in very large databases or through web mining. Student will also be able to clean data, which includes finding and removing unwanted bits of data in spreadsheets, formatting data correctly, dealing with inconsistencies in the data, and structuring of data for effective use.

Data Processing
On completion of the module, students should be able to manipulate data into usable and desired form that is suitable for analytics processing. Students will also be able to process using a predefined sequence of operation either manually or automatically.

Data Preparation for Machine Learning
On completion of the module, students should be able to apply techniques to explore, analyse, and leverage data. Students will be able to apply tools and algorithms to create machine learning models that learn from data, and to scale those models up to big data problems.

Data Visualisation & Reporting
On completion of the module, students should be able to draw insights from data, deploy storyboards and present their insights using the most effective visual representations.

Industry Attachment
On completion of the modules, students should be able to integrate and apply a cluster of key technical, social and methodological competencies related to their field of work.

Electives (Course Specific)

Cloud Essentials for Big Data
On completion of the module, students should be able to able to apply data extraction, cleaning and loading techniques from cloud platforms.

Electives (Inter-disciplinary)

Applied Scripting Using Python
On completion of the module, students should be able to perform scripting using Python for solving problems.

Robotic Process Automation
On completion of the module, students should be able to write simple scripts to handle high-volume and repeated tasks.

Essentials in Machine Learning
On completion, the students will be able to prepare data to solve specific business problems and use base-line model for Machine Learning.

Infographics Design
On completion of the module, students should be able to convert complicated information including facts, data and references into comprehensible and appealing visual infographic presentations.

Electives (General)
As reflected on pages 300-301.

Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN ELECTRONICS ENGINEERING (2 YEARS)

COURSE SYNOPSIS

On completion of the course, students should be able to

- Set up, maintain and troubleshoot electronic systems and modules such as communications, computer and automated testing.
- Perform functional, operational and life tests to evaluate performance and reliability of electronic equipment and systems.
- Optimise electronic systems performance by adjusting, calibrating and modifying circuitry and components.
- Deploy programmable controller-based system for applications.
- Set up and interface computer networks and devices.
- Write technical reports and develop charts, graphs, and schematics to illustrate system’s operating characteristics, malfunctions, deviations from design specifications, and functional limitations for consideration by engineers.
- Develop electronic prototypes for testing and applications.
- Install, integrate, service, maintain and commission audio visual devices and system.
- Perform audio visual control and networking.
- Install, configure, test and maintain sensors devices and controllers.
- Support Internet-of-Things (IoT) architecture platform.
- Program microcontroller-based systems.
- Perform sensors and communication network interfacing.
- Set up, maintain and service automation systems.
- Deploy AI solutions.
- Support wafer fabrication processes and automation equipment for fabrication of integrated circuits.

JOB OPPORTUNITIES

Higher Nitec in Electronics Engineering graduates are employed by organisations and companies in the electronics industry, such as those that:

- Manufacture or assemble electronic equipment and components.
- Design and construct special electronics projects.

Higher Nitec in Electronics Engineering graduates are also employed by other manufacturing sectors that use electronically-controlled production machines. Some of the job titles held by graduates include Communication Equipment Technician, Electronics Engineering Technician, Engineering Assistant, Production Supervisor and Telecommunications Technician. There are excellent opportunities for career advancement to supervisory positions and beyond.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
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<td>Life Skills Modules</td>
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<tr>
<td>Electives</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>66</strong></td>
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</tbody>
</table>

COURSE STRUCTURE

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
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<tr>
<td>Electronic Devices &amp; Circuits</td>
<td>3</td>
</tr>
<tr>
<td>Digital Electronics &amp; Simulation</td>
<td>3</td>
</tr>
<tr>
<td>Analogue Applications</td>
<td>3</td>
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<tr>
<td>Digital Applications</td>
<td>3</td>
</tr>
<tr>
<td>Computer Networking</td>
<td>3</td>
</tr>
<tr>
<td>Programming &amp; Interfacing</td>
<td>3</td>
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<tr>
<td>Wireless Communications</td>
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<td>Microcontroller Applications</td>
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<tr>
<td>IoT Fundamentals</td>
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<td><strong>SPECIALISATION MODULES</strong></td>
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<tr>
<td><strong>Group A (Audio Visual Systems)</strong></td>
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<tr>
<td>AV Peripherals</td>
<td>3</td>
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<tr>
<td>AV Control &amp; Automation</td>
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<tr>
<td>AV Integration</td>
<td>3</td>
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<tr>
<td>AV IT &amp; Streaming</td>
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<tr>
<td>Industry Attachment</td>
<td>8</td>
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</tbody>
</table>
Module Title | Credits
---|---
** OR**
**Group B (IoT & Communications)**
Sensors & Actuators | 3
IoT Protocols & Power Management | 3
IoT Programming & Cloud Services | 3
IoT Data Analytics & Visualisation | 3
Industry Attachment | 8
** OR**
**Group C (AI & Automation)**
AI Fundamentals | 3
AI Applications | 3
Principles of Autonomous Robotic System | 3
Autonomous System Applications | 3
Industry Attachment | 8
** OR**
**Group D (Microelectronics)**
Semiconductor Fundamentals | 3
Semiconductor Processes | 3
Semiconductor Metrology | 3
Industrial Automation | 3
Industry Attachment | 8

**LIFE SKILLS MODULES**
Refer to page 304

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.

**MODULE OBJECTIVES**

**Core Modules**

Electronic Devices & Circuits
On completion of the module, students should be able to construct and test analogue electronic devices and circuits.

Digital Electronics & Simulation
On completion of the module, students should be able to test and troubleshoot various digital electronic circuits.

**Analogue Applications**
On completion of the module, students should be able to analyse, test and troubleshoot analogue electronic applications.

**Digital Applications**
On completion of the module, students should be able to analyse, construct, test and troubleshoot digital electronic applications.

**Computer Networking**
On completion of the module, students should be able to set up computer network, troubleshoot network connectivity issues, as well as test network performance.

**Programming & Interfacing**
On completion of the module, students should be able to write programs and interface with I/O devices in a microcontroller-based system.

**Wireless Communications**
On completion of the module, students should be able to set up and test electronic communication systems.

**Microcontroller Applications**
On completion of the module, students should be able to create algorithms and develop microcontroller applications with input and output devices.

**IoT Fundamentals**
On completion of the module, students should be able to configure, establish communication and process data from IoT environmental elements such as devices, nodes, gateways and cloud.

**Specialisation Modules**

**Group A (Audio Visual Systems)**

**AV Peripherals**
On completion of the module, students should be able to integrate AV devices with peripherals and accessories, as well as align AV equipment.

**AV Control & Automation**
On completion of the module, students should be able to install, configure, maintain and troubleshoot AV devices for network automation system.
AV Integration
On completion of the module, students should be able to design, install, test and troubleshoot an AV system for an application.

AV IT & Streaming
On completion of the module, students should be able to set up and configure networking devices for streaming network systems.

Industry Attachment
Students will undergo 6-month industry attachment to reinforce the skills and knowledge acquired at the training institute and to develop competencies in other areas not covered in the curriculum.

Group B (IoT & Communications)

Sensors & Actuators
On completion of the module, students should be able to identify applications and perform installation of sensors and output devices.

IoT Protocols & Power Management
On completion of the module, students should be able to install, interface and configure sensors and output devices with controller to establish network communication.

IoT Programming & Cloud Services
On completion of the module, students should be able to apply programming skills with knowledge of embedded system, as well as principles of cloud computing and IoT systems.

IoT Data Analytics & Visualisation
On completion of the module, students should be able to perform data visualisation and analysis for an IoT application by applying business intelligence.

Industry Attachment
Students will undergo 6-month industry attachment to reinforce the skills and knowledge acquired at the training institute and to develop competencies in other areas not covered in the curriculum.

Group C (AI & Automation)

AI Fundamentals
On completion of the module, students should be able to perform various Machine Learning (ML) tasks by applying ML libraries and frameworks.

Al Applications
On completion of the module, students should be able to solve real-world applications by applying AI services and technologies.

Principles of Autonomous Robotic System
On completion of the module, students should be able to deploy and test autonomous systems, as well as perform localisation, mapping and navigation by applying robotic algorithms.

Autonomous System Applications
On completion of the module, students should be able to deploy and troubleshoot autonomous systems, by applying principles of perception, planning, localising, mapping and decision-making capabilities.

Industry Attachment
Students will undergo 6-month industry attachment to reinforce the skills and knowledge acquired at the training institute and to develop competencies in other areas not covered in the curriculum.

Group D (Microelectronics)

Semiconductor Fundamentals
On completion of the module, students should be able to perform cleanroom and safety protocols, and maintain vacuum systems.

Semiconductor Processes
On completion of the module, students should be able to perform automated wafer processes for fabrication of integrated circuits used in electronic devices.

Semiconductor Metrology
On completion of the module, students should be able to perform semiconductor metrology measurements for fabrication of integrated circuits processes.

Industrial Automation
On completion of the module, students should be able to implement electro-mechanical control systems, including common input/output devices, pneumatics, electro-pneumatics and Programmable Logic Controller (PLC) systems in industrial automation.
Industry Attachment
Students will undergo 6-month industry attachment to reinforce the skills and knowledge acquired at the training institute and to develop competencies in other areas not covered in the curriculum.

Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN GAMES ART & DESIGN

COURSE SYNOPSIS

On completion of the course, students should be able to

- Create concept art.
- Create art assets.
- Animate art assets.
- Design game levels.
- Create game marketing materials.

JOB OPPORTUNITIES

Higher Nitec in Games Art & Design graduates are employed by companies as Design Conceptual Artist, Character Designer and Game Level Designer.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
<td>51</td>
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<td>Life Skills Modules</td>
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<td>Elective Modules</td>
<td>4</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>65</strong></td>
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</tbody>
</table>

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### MODULE OBJECTIVES

#### Core Modules

**Game Design Principles**
On completion of the module, students should be able to conduct market research, determine game genre and features, create game design documents, integrate game audio and craft gamification approaches. They will also be able to build and present mini prototypes.

**Drawing Fundamentals**
On completion of the module, students should be able to conduct reference studies and sketch game props, environments and characters.

**2D Game Asset Creation**
On completion of the module, students should be able to conduct art direction research, sketch game environments, prepare 2D art asset requirements, create sprite sheets and graphical user interfaces. They will also be able to produce and perform checks on final 2D artworks.

**3D Modelling and Texturing for Games**
On completion of the module, students should be able to prepare 3D art asset requirements and create game characters, environments, props and lighting in game engine. They will also be able to optimise art assets, produce and perform checks on final 3D artworks.

**Game Level Production**
On completion of the module, students should be able to outline game stories, analyse user interface (UI) requirements, create game scenes, conduct peer review sessions and refine game designs.

**3D Rigging and Animation for Games**
On completion of the module, students should be able to create character and object rigs, and animation keyframes. They will also be able to perform test rendering, optimise art assets and integrate game assets into game engine.

**Game Portfolio Development**
On completion of the module, students should be able to create game trailers and build portfolio webpages.

**Industry Attachment**
Students are provided with the opportunity to work in actual games design and development environment.

#### Electives (Course Specific)

**Visual Effects for Games**
On completion of the module, students should be able to create visual effects for games.

**Web Game Production**
On completion of the module, students should be able to create and publish 2D games in web platform.

#### Electives (General)
As reflected on pages 300-301.

#### Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN GAMES PROGRAMMING & DEVELOPMENT

COURSE SYNOPSIS

On completion of the course, students should be able to

- Participate in the game design process.
- Develop game program code.
- Design game levels.
- Perform game integration and testing.

JOB OPPORTUNITIES

Higher Nitec in Games Programming & Development graduates are employed by companies as Game Tester, Game Programmer, Games Content Developer and Games Software Engineer.

CERTIFICATION

Credits required for certification:

| Core Modules       | 51 |
| Life Skills Modules| 10 |
| Elective Modules   | 4  |
| **Total**          | **65** |

Module Title                  | Credits |
---                            | ---     |
**CORE MODULES**              |         |
Game Design Principles         | 7       |
Programming Fundamentals       | 7       |
Game Programming               | 7       |
Interactive Development Techniques | 6    |
Mobile Game Development        | 7       |
Game Level Production          | 7       |
Games Integration and Testing  | 6       |
Industry Attachment            | 4       |

**ELECTIVES (COURSE SPECIFIC)**

Visual Effects for Games       | 2       |

**ELECTIVES (GENERAL)**

Refer to pages 300-301

**LIFE SKILLS MODULES**

Refer to page 304

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Game Design Principles
On completion of the module, students should be able to conduct market research, determine game genre and features, create game design documents, integrate game audio and craft gamification approaches. They will also be able to build and present mini prototypes.

Programming Fundamentals
On completion of the module, students should be able to implement game programs, perform game debugging and code optimisation, refine game features, analyse game specifications and perform basic hardware troubleshooting.

Game Programming
On completion of the module, students should be able to implement game programs, create game scenes, integrate game user interfaces (UI) and game audio. They will also be able to build and present mini prototypes.

Interactive Development Techniques
On completion of the module, students should be able to analyse game design documents, conduct feasibility studies, evaluate game engines, implement game programs, implement AI in games and deploy games to server.

Mobile Game Development
On completion of the module, students should be able to integrate game user interfaces (UI), apply physics in games, perform code optimisations and iterative development/rapid prototyping, generate technical documentations and implement multi-platform programming.

Game Level Production
On completion of the module, students should be able to outline game stories, analyse user interface (UI) requirements, create game scenes, conduct peer review sessions and refine game designs.

Games Integration and Testing
On completion of the module, students should be able to perform program integration, game debugging and source code management, create test plans, perform unit testing, conduct playability tests and create testing reports.

Industry Attachment
Students are provided with the opportunity to work in actual games design and development environment.

Electives (Course Specific)

Visual Effects for Games
On completion of the module, students should be able to create visual effects for games.

Electives (General)
As reflected on pages 300-301.

Life Skills Modules
As reflected on page 304.
**COURSE SYNOPSIS**

On completion of the course, students should be able to

- Design UI/UX.
- Develop and support web applications.
- Develop and support mobile applications.
- Create and maintain content.
- Perform software testing.

**JOB OPPORTUNITIES**

*Higher NITEC* in IT Applications Development course equips students with skills and knowledge to develop web and mobile applications, as well as to create and maintain content for IT applications and services. Some of the job titles held by graduates include Application Programmer, Rich Internet Application (RIA) Developer, Application Support Analyst, Web Commerce Applications Developer, UI Programmer, IT Specialist (Mobile Programmer), Mobile Applications Developer Support, Web Developer Support and Test Engineer.

**CERTIFICATION**

Credits required for certification:

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MODULE OBJECTIVES

Core Modules
Coding for AI
On completion of the modules, students should be able to experience the concepts of AI through no to low coding methods. Students will create basic program logic and AI model through fun and engaging project.

Introduction to UI/UX
On completion of the module, students should be able to apply User Interface (UI) and User Experience (UX) development process to produce low-fidelity and high-fidelity wireframes and prototypes for websites and mobile apps.

Software Development Practices
On completion of the module, students should be able to apply their knowledge and skills in software development methods on recommended solutions.

Programming Essentials
On completion of the module, students should be able to apply fundamental programming concepts and computational thinking for basic programs.

User Experience Development
On completion of the module, students should be able to design, develop and maintain; mobile and web interfaces. Students will also be able to create and edit graphics and develop user interfaces.

Front-end Web Development
On completion of the module, students should be able to apply the knowledge, techniques and skills to develop responsive web applications using front-end web development technologies.

Server-side Development
On completion of the module, students should be able to develop dynamic and interactive media applications.

Web Content Management
On completion of the module, students should be able to configure and publish websites, with online payment support and social media integration. Students will also learn to perform website testing.

Website Optimisation Fundamentals
Upon completion of this module, students should be able to use various tools to improve the performance of a website to drive traffic, increase conversions and grow revenue.

Specialisation Modules
Enterprise Web Development
On completion of the module, students should be able to develop Enterprise Web applications using techniques to manage operations of an organisation.

Mobile Apps Development
On completion of the module, students should be able to design, develop and deploy native mobile applications for various platforms.

Enterprise Solutions Development
On completion of the module, students should be able to develop, test and deploy secure web services.

Mobile Solutions Development
On completion of the module, students should be able to apply the knowledge, techniques and skills required to integrate frameworks and database into mobile applications.

Industry Attachment
On completion of the module, students should be able to apply and integrate the skills and knowledge that they have acquired at ITE College and develop competencies in other areas not covered in the curriculum, at the workplace.

Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN IT SYSTEMS & NETWORKS (2 YEARS)

COURSE SYNOPSIS

On completion of the course, students should be able to

- Manage computer systems and devices.
- Manage computer network.
- Support networked servers.
- Assist to manage virtualisation infrastructure.
- Implement wireless LAN.
- Implement network security.
- Assist support of IT project development.

JOB OPPORTUNITIES

Higher Nitec in IT Systems & Networks graduates can be employed by IT-users and supplier organisations. The IT users are organisations (public, private, MNCs and SMEs) using computer systems (networked or stand-alone) in their business operations. The IT suppliers are companies providing computer hardware/software and IT services.

Some of the job titles held by graduates are IT Specialist, Associate Infrastructure Support Engineer, IT Technician, Network Support Technician, IT Technical Support Specialist, Associate System Administrator, Desktop Support Engineer and Network Traffic Engineer.

There are excellent opportunities for career advancement to supervisory positions and beyond.

CERTIFICATION

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Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Networking Fundamentals
On completion of the module, students should be able to set up, configure, set up and troubleshoot wired and wireless network system for small office environment. They should be able to provide network support and configure devices such as switches and wireless access points.

System Software Essentials
On completion of the module, students should be able to install and configure operating system (OS) and application software on end user computing devices. In addition, they should also be able to perform OS maintenance and troubleshooting.

Computer Maintenance
On completion of the module, students should be able to perform installation and configuration of hardware components and peripherals of end user computing devices. In addition, they should also be able to perform end user computing devices maintenance and troubleshooting of hardware problems.

Networking Technology
On completion of the module, students should be able to apply the fundamentals of computer networking in relation to the OSI model. They should also be able to configure and set up wired and wireless local area network (LAN) including network segmentation. Students will also be able to perform network documentation and monitor network performance.

Enterprise Networking
On completion of the module, students should be able to configure and set up a switched and routed network with Virtual LANs (VLANs) as well as set up a wide area network (WAN), implement access control lists and troubleshoot common network issues and problems.

System Administration
On completion of the module, students should be able to set up server operating systems and perform system administration tasks such as user management, resource management and performance monitoring. Students should also be able to configure file server services and implement basic system security.

System Hardening & Infrastructure Services
On completion of the module, students should be able to perform server security hardening and manage infrastructure services. Students should also be able to automate server administration and implement high-availability systems.

Virtualisation Fundamentals
On completion of the module, students should be able to set up virtualisation server and environment. They should also be able to perform backup and recovery of VMs for fault tolerance. They should be able to perform basic troubleshooting with hypervisor and VMs.

Cloud System Administration
On completion of the module, students should be able to administer cloud / virtualisation platform and its associated services, monitor resource utilisation on the hypervisor, troubleshoot performance and connectivity issues as well as secure the cloud / virtualised infrastructure. They will also be introduced to commercially available cloud services, including containers and be able to utilise them.

Specialisation Modules

Scripting Essentials
On completion of the module, students should be able to apply basic structured thinking skill to develop script to perform basic system related tasks and activities.

Administrative Scripting
On completion of the module, students should be able to provide programming support to IT system automation and other related project.

Wireless Networking Fundamentals
On completion of the module, students should be able to install, configure and secure Wireless Local Area Networks (WLANs). They should also be able to perform monitoring of WLAN.

Infrastructure Security
On completion of the module, students should be able to configure firewall appliances, intrusion detection and prevention systems, firewall policies and set up Virtual Private Networks. They should also be able to implement appropriate technologies to protect against security attacks such as spams, spyware and worms/viruses including the set-up of end-point security measures.
Industry Attachment
On completion of the modules, students should be able to integrate and apply a cluster of key technical, social and methodological competencies related to their field of study.

Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN SECURITY SYSTEM INTEGRATION (2 YEARS)

COURSE SYNOPSIS

On completion of the course, students should be able to

• Set up wired and wireless networks to accommodate IP-ready security systems.
• Set up backend security network infrastructure to support security systems.
• Troubleshoot and maintain security systems.
• Design and implement security system solutions to meet client’s requirements.
• Manage security system installation projects.
• Integrate and implement centralised security management system.

JOB OPPORTUNITIES

With the strong support of the Security Systems Association of Singapore (SSAS) which represents more than 50 major security systems solution providers, Higher Nitec in Security System Integration graduates will be readily employed by SSAS members and security system integrators. Some of the job titles held by graduates include Technical Specialist, Security Systems Specialist and Senior Technician.

CERTIFICATION

Credits required for certification:

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Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
## MODULE OBJECTIVES

### Core Modules

**Electrical & Cabling Technology**  
On completion of the module, students should be able to set up, maintain and troubleshoot cabling systems.

**IoT Fundamentals**  
On completion of the module, students should be able to configure, establish communication and process data from IoT environmental elements such as devices, nodes, gateways and cloud.

**System Administration**  
On completion of the module, students should be able to set up server operating systems and perform system administration tasks such as user management, resource management and performance monitoring. Students should also be able to configure file server services and implement basic system security.

**Networking for Security Systems**  
On completion of this module, students should be able to plan, install, configure and troubleshoot computer network system for the wired and wireless LAN environment.

**CAD for Security Systems**  
On completion of this module, students should be able to create, update and interpret electrical and security system installation drawings.

**Intrusion Detection System**  
On completion of this module, students should be able to install, maintain and troubleshoot intrusion detection systems in various security environments.

**Access Control System**  
On completion of this module, students should be able to install, maintain and troubleshoot access control systems in various security environments.

**Video Surveillance Technology**  
On completion of this module, students should be able to select, test and troubleshoot video surveillance devices.

**Video Surveillance System**  
On completion of this module, students should be able to set up, maintain and troubleshoot surveillance systems.

### Specialisation Modules

**Security System Integration**  
On completion of the module, students should be able to design, install, maintain and troubleshoot an integrated security system.

**Project Management**  
On completion of the module, students should be able to plan, execute and monitor security system project using the various project management tools and techniques to meet the project scope, schedule and cost requirements.

**AI for Security Systems**  
On completion of the module, students should be able to establish, implement, test and troubleshoot AI and Automation in security system.

**Cybersecurity for Physical System**  
On completion of the module, students should be able to identify cybersecurity threats and vulnerabilities, utilize technologies and tools to mitigate them.

**Industry Attachment**  
On completion of the module, students should be able to apply and integrate the skills and knowledge that they have acquired at ITE College and develop competencies in other areas not covered in the curriculum, at the workplace.

### Life Skills Modules

As reflected on page 304.
HIGHER NITEC IN BUSINESS INFORMATION SYSTEMS (3 YEARS)

COURSE SYNOPSIS

On completion of the course, students should be able to

- Manage computer systems and devices.
- Manage computer network.
- Support networked servers.
- Assist to manage virtualisation infrastructure.
- Support database management system.
- Assist support of business application development.
- Support and implement enterprise solutions.

JOB OPPORTUNITIES

Higher Nitec in Business Information Systems graduates may be employed by government departments, private sector companies and Independent Software Vendors (ISVs). There are opportunities for career advancement to supervisory positions and beyond. Graduates with good grades may progress to the diploma courses being offered in local polytechnics. Some of the job titles held by graduates include Business Information Systems Specialist, Associate Infrastructure Support Engineer and IT Technical Support Specialist.

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Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Foundation Modules

Networking Fundamentals
On completion of the module, students should be able to set up, configure, set up and troubleshoot wired and wireless network system for small office environment. They should be able to provide network support and configure devices such as switches and wireless access points.

Coding for AI
On completion of the modules, students should be able to experience the concepts of AI through no to low coding methods. Students will create basic program logic and AI model through fun and engaging project.

Operating System Essentials
On completion of the module, students should be able to install and configure operating system (OS) and application software on end user computing devices. In addition, they should also be able to perform OS maintenance and troubleshooting.

Digital Media Technologies
On completion of the module, students should be able to apply their knowledge and skills in processing appropriate digital media formats for various platforms delivery.

Fundamentals of Data
On completion of the module, students should be able to import data from external sources, perform basic data manipulation and present simple visualisation of the data.

Introduction to UI/UX
On completion of the module, students should be able to apply User Interface (UI) and User Experience (UX) development process to produce low-fidelity and high-fidelity wireframes and prototypes for websites and mobile apps.

Web Development Essentials
On completion of the module, students should be able to develop web pages using HTML and CSS.

Cybersecurity Fundamentals
On completion of the module, students should be able to apply the knowledge and essentials skills in all security domains in the cyber world - information security, systems security, network security, mobile security, physical security, ethics and laws, related technologies, defence and mitigation techniques use in protecting.

Core Modules

Computer Maintenance
On completion of the module, students should be able to perform installation and configuration of hardware components and peripherals of end user computing devices. In addition, they should also be able to perform end user computing devices maintenance and troubleshooting of hardware problems.

Networking Technology
On completion of the module, students should be able to apply the fundamentals of computer networking in relation to the OSI model. They should also be able to configure and set up wired and wireless local area network (LAN) including network segmentation. Students will also be able to perform network documentation and monitor network performance.

Enterprise Networking
On completion of the module, students should be able to configure and set up a switched and routed network with Virtual LANs (VLANs) as well as set up a wide area network (WAN), implement access control lists and troubleshoot common network issues and problems.

System Administration
On completion of the module, students should be able to set up server operating systems and perform system administration tasks such as user management, resource management and performance monitoring. Students should also be able to configure file server services and implement basic system security.

System Hardening & Infrastructure Services
On completion of the module, students should be able to perform server security hardening and manage infrastructure services. Students should also be able to automate server administration and implement high-availability systems.

Virtualisation Fundamentals
On completion of the module, students should be able to set up virtualisation server and environment. They should also be able to perform backup and recovery of VMs for fault tolerance. They should be able to perform basic troubleshooting with hypervisor and VMs.
Cloud System Administration
On completion of the module, students should be able to administer cloud / virtualisation platform and its associated services, monitor resource utilisation on the hypervisor, troubleshoot performance and connectivity issues as well as secure the cloud / virtualised infrastructure. They will also be introduced to commercially available cloud services, including containers and be able to utilise them.

Industry Attachment 1
On completion of the modules, students should be able to integrate and apply a cluster of key technical, social and methodological competencies related to their field of study.

Specialisation Modules

Database Essentials
On completion of this module, students should be able to perform data manipulation and manage database server, as well as create databases and extract information for business report generation.

Application Development
On completion of this module, students should be able to create secured software applications that connect to database.

Enterprise Systems Administration
On completion of the module, students should be able to install and configure Enterprise Resource Planning systems. In addition, they should be able to administer user accounts and customise user interfaces.

Enterprise Systems Process
On completion of the module, students should be able to set up and configure data migration for Enterprise Resource Planning systems. In addition, they should be able to set up and implement security policies, business processes, as well as support in business reporting function.

Industry Attachment 2
On completion of the modules, students should be able to integrate and apply a cluster of key technical, social and methodological competencies related to their field of study.

Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN CYBER & NETWORK SECURITY (3 YEARS)

COURSE SYNOPSIS

On completion of the course, students should be able to

- Manage end-user computer systems and devices.
- Manage computer network.
- Support networked servers.
- Assist to manage virtualisation infrastructure.
- Manage security infrastructure.
- Perform vulnerability assessment.
- Perform cyber security operations.

JOB OPPORTUNITIES

Higher Nitec in Cyber & Network Security graduates are employed in all public and private sector organisations to provide technical support for networks, systems and storage with an emphasis on IT security for business continuity in an enterprise IT cloud environment. Some of the job titles held by the graduates include Cyber Security Associate, Associate Security Administrator, Associate Security Engineer, Information Security Analyst, Information Security Associate, Information Security Officer and IT Security Specialist.

There are excellent opportunities for career advancement to supervisory positions and beyond.

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MODULE OBJECTIVES

Foundation Modules

Networking Fundamentals
On completion of the module, students should be able to set up, configure, set up and troubleshoot wired and wireless network system for small office environment. They should be able to provide network support and configure devices such as switches and wireless access points.

Coding for AI
On completion of the modules, students should be able to experience the concepts of AI through no to low coding methods. Students will create basic program logic and AI model through fun and engaging project.

Operating System Essentials
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Cybersecurity Fundamentals
On completion of the module, students should be able to apply the knowledge and essentials skills in all security domains in the cyber world - information security, systems security, network security, mobile security, physical security, ethics and laws, related technologies, defence and mitigation techniques use in protecting.

Core Modules

Computer Maintenance
On completion of the module, students should be able to perform installation and configuration of hardware components and peripherals of end user computing devices. In addition, they should also be able to perform end user computing devices maintenance and troubleshooting of hardware problems.

Networking Technology
On completion of the module, students should be able to apply the fundamentals of computer networking in relation to the OSI model. They should also be able to configure and set up wired and wireless local area network (LAN) including network segmentation. Students will also be able to perform network documentation and monitor network performance.

Enterprise Networking
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System Administration
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System Hardening & Infrastructure Services
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Virtualisation Fundamentals
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Cloud System Administration
On completion of the module, students should be able to administer cloud / virtualisation platform and its associated services, monitor resource utilisation on the hypervisor, troubleshoot performance and connectivity issues as well as secure the cloud / virtualised infrastructure. They will also be introduced to commercially available cloud services, including containers and be able to utilise them.

Industry Attachment 1
On completion of the modules, students should be able to integrate and apply a cluster of key technical, social and methodological competencies related to their field of study.

Specialisation Modules

Infrastructure Security
On completion of the module, students should be able to configure firewall appliances, intrusion detection and prevention systems, firewall policies and set up Virtual Private Networks. They should also be able to implement appropriate technologies to protect against security attacks such as spams, spyware and worms/viruses including the set-up of end-point security measures.

IT Security
On completion of the module, students should be able to perform network intrusion detection, prevention and mitigation through the implementation of intrusion detection system. They should also be able to implement a secure network using Public Key Infrastructure technologies and set up a secure wireless network, as well as perform privilege identity management support functions.

Security Operations
On completion of the module, students should be able to take up tasks in the Security Operations Centre (SOC) environment including monitoring and identifying security risks, analysing and classifying security risks through security monitoring systems. They should also be able to apply appropriate counter measures to mitigate identified threats.

Security Vulnerability Testing
On completion of the module, students should be able to perform system and network scanning, vulnerability assessment and documentation of identified vulnerabilities. They should also be able to perform basic penetration testing and prepare appropriate test documentation.

Industry Attachment 2
On completion of the modules, students should be able to integrate and apply a cluster of key technical, social and methodological competencies related to their field of study.

Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN ELECTRONICS ENGINEERING (3 YEARS)

COURSE SYNOPSIS

On completion of the course, students should be able to

- Set up, maintain and troubleshoot electronic systems and modules such as communications, computer and automated testing.
- Perform functional, operational and life tests to evaluate performance and reliability of electronic equipment and systems.
- Optimise electronic systems performance by adjusting, calibrating and modifying circuitry and components.
- Deploy programmable controller-based system for applications.
- Set up and interface computer networks and devices.
- Write technical reports and develop charts, graphs, and schematics to illustrate system’s operating characteristics, malfunctions, deviations from design specifications, and functional limitations for consideration by engineers.
- Develop electronic prototypes for testing and applications.
- Install, integrate, service, maintain and commission audio visual devices and system.
- Perform audio visual control and networking.
- Install, configure, test and maintain sensors devices and controllers.
- Support Internet-of-Things (IoT) architecture platform.
- Program microcontroller-based systems.
- Perform sensors and communication network interfacing.
- Set up, maintain and service automation systems.
- Deploy AI solutions.
- Support wafer fabrication processes and automation equipment for fabrication of integrated circuits.

JOB OPPORTUNITIES

Higher Nitec in Electronics Engineering graduates are employed by organisations and companies in the electronics industry, such as those that:

- Manufacture or assemble electronic equipment and components.
- Design and construct special electronics projects.

Higher Nitec in Electronics Engineering graduates are also employed by other manufacturing sectors that use electronically-controlled production machines. Some of the job titles held by graduates include Communication Equipment Technician, Electronics Engineering Technician, Engineering Assistant, Production Supervisor and Telecommunications Technician. There are excellent opportunities for career advancement to supervisory positions and beyond.

CERTIFICATION

Credits required for certification:

| Foundation Modules | 24 |
| Core Modules       | 25 |
| Specialisation Modules | 20 |
| Life Skills Modules | 10 |
| Cross Disciplinary Core Modules | 9 |
| Electives          | 8  |
| **Total**          | **96** |

COURSE STRUCTURE

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FOUNDATION MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Electrical &amp; Cabling Technology</td>
<td>3</td>
</tr>
<tr>
<td>CAD &amp; Soldering</td>
<td>3</td>
</tr>
<tr>
<td>Digital Electronics</td>
<td>3</td>
</tr>
<tr>
<td>Analogue Electronics</td>
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</tr>
<tr>
<td>Programming Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>IoT Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>Networking &amp; Communications Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>Cybersecurity Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td><strong>CORE MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Electronic Devices &amp; Circuits</td>
<td>3</td>
</tr>
<tr>
<td>Digital Electronics &amp; Simulation</td>
<td>3</td>
</tr>
<tr>
<td>Analogue Applications</td>
<td>3</td>
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<tr>
<td>Digital Applications</td>
<td>3</td>
</tr>
<tr>
<td>Computer Networking</td>
<td>3</td>
</tr>
<tr>
<td>Microcontroller Applications</td>
<td>3</td>
</tr>
</tbody>
</table>
**Module Title** | **Credits**
--- | ---
Wireless Communications | 3
Industry Attachment 1 | 4

**SPECIALISATION MODULES**

**Group A (Audio Visual Systems)**

- AV Peripherals | 3
- AV Control & Automation | 3
- AV Integration | 3
- AV IT & Streaming | 3
- Industry Attachment 2 | 8

**OR**

**Group B (IoT & Communications)**

- Sensors & Actuators | 3
- IoT Protocols & Power Management | 3
- IoT Programming & Cloud Services | 3
- IoT Data Analytics & Visualisation | 3
- Industry Attachment 2 | 8

**OR**

**Group C (AI & Automation)**

- AI Fundamentals | 3
- AI Applications | 3
- Principles of Autonomous Robotic System | 3
- Autonomous System Applications | 3
- Industry Attachment 2 | 8

**OR**

**Group C (Microelectronics)**

- Semiconductor Fundamentals | 3
- Semiconductor Processes | 3
- Semiconductor Metrology | 3
- Industrial Automation | 3
- Industry Attachment 2 | 8

**LIFE SKILLS MODULES**

Refer to page 304

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**MODULE OBJECTIVES**

**Foundation Modules**

**Electrical & Cabling Technology**

On completion of the module, students should be able to set up, maintain and troubleshoot cabling systems.

**CAD & Soldering**

On completion of the module, students should be able to create and update CAD drawings, as well as build electronic prototypes.

**Digital Electronics**

On completion of the module, students should be able to set up and test digital electronic circuits.

**Analogue Electronics**

On completion of the module, students should be able to set up and test analogue electronic circuits.

**Programming Fundamentals**

On completion of the module, students should be able to apply programming constructs such as variables, programming syntax, sequential programming and control flow statements, in a programmable controller-based system.

**IoT Fundamentals**

On completion of the module, students should be able to configure, establish communication and process data from IoT environmental elements such as devices, nodes, gateways and cloud.

**Networking & Communications Fundamentals**

On completion of the module, students should be able to set up, configure, maintain and test computer and communication networks. They should also be able to identify the various network topologies and protocols, and troubleshoot network connectivity faults.

**Cybersecurity Fundamentals**

On completion of the module, students should be able to apply the knowledge and essentials skills in all security domains in the cyber world - information security, systems security, network security, mobile security, physical security, ethics and laws, related technologies, defence and mitigation techniques use in protecting.

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*Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.*
Core Modules

Electronic Devices & Circuits
On completion of the module, students should be able to construct and test analogue electronic devices and circuits.

Digital Electronics & Simulation
On completion of the module, students should be able to test and troubleshoot various digital electronic circuits.

Analogue Applications
On completion of the module, students should be able to analyse, test and troubleshoot analogue electronic applications.

Digital Applications
On completion of the module, students should be able to analyse, construct, test and troubleshoot digital electronic applications.

Computer Networking
On completion of the module, students should be able to set up computer network, troubleshoot network connectivity issues, as well as test network performance.

Microcontroller Applications
On completion of the module, students should be able to create algorithms and develop microcontroller applications with input and output devices.

Wireless Communications
On completion of the module, students should be able to set up and test electronic communication systems.

Industry Attachment 1
Students will undergo 3-month industry attachment to reinforce the skills and knowledge acquired at the training institute and to develop competencies in other areas not covered in the curriculum.

Specialisation Modules

Group A (Audio Visual Systems)

AV Peripherals
On completion of the module, students should be able to integrate AV devices with peripherals and accessories, as well as align AV equipment.

AV Control & Automation
On completion of the module, students should be able to install, configure, maintain and troubleshoot AV devices for network automation system.

AV Integration
On completion of the module, students should be able to design, install, test and troubleshoot an AV system for an application.

AV IT & Streaming
On completion of the module, students should be able to set up and configure networking devices for streaming network systems.

Industry Attachment 2
Students will undergo 6-month industry attachment to reinforce the skills and knowledge acquired at the training institute and to develop competencies in other areas not covered in the curriculum.

Group B (IoT & Communications)

Sensors & Actuators
On completion of the module, students should be able to identify applications and perform installation of sensors and output devices.

IoT Protocols & Power Management
On completion of the module, students should be able to install, interface and configure sensors and output devices with controller to establish network communication.

IoT Programming & Cloud Services
On completion of the module, students should be able to apply programming skills with knowledge of embedded system, as well as principles of cloud computing and IoT systems.

IoT Data Analytics & Visualisation
On completion of the module, students should be able to perform data visualisation and analysis for an IoT application by applying business intelligence.

Industry Attachment 2
Students will undergo 6-month industry attachment to reinforce the skills and knowledge acquired at the training institute and to develop competencies in other areas not covered in the curriculum.
**Group C (AI & Automation)**

**AI Fundamentals**
On completion of the module, students should be able to perform various Machine Learning (ML) tasks by applying ML libraries and frameworks.

**AI Applications**
On completion of the module, students should be able to solve real-world applications by applying AI services and technologies.

**Principles of Autonomous Robotic System**
On completion of the module, students should be able to deploy and test autonomous systems, as well as perform localisation, mapping and navigation by applying robotic algorithms.

**Autonomous System Applications**
On completion of the module, students should be able to deploy and troubleshoot autonomous systems, by applying principles of perception, planning, localising, mapping and decision-making capabilities.

**Industry Attachment 2**
Students will undergo 6-month industry attachment to reinforce the skills and knowledge acquired at the training institute and to develop competencies in other areas not covered in the curriculum.

**Group D (Microelectronics)**

**Semiconductor Fundamentals**
On completion of the module, students should be able to perform cleanroom and safety protocols, and maintain vacuum systems.

**Semiconductor Processes**
On completion of the module, students should be able to perform automated wafer processes for fabrication of integrated circuits used in electronic devices.

**Semiconductor Metrology**
On completion of the module, students should be able to perform semiconductor metrology measurements for fabrication of integrated circuits processes.

**Industrial Automation**
On completion of the module, students should be able to implement electro-mechanical control systems, including common input/output devices, pneumatics, electro-pneumatics and Programmable Logic Controller (PLC) systems in industrial automation.

**Industry Attachment 2**
Students will undergo 6-month industry attachment to reinforce the skills and knowledge acquired at the training institute and to develop competencies in other areas not covered in the curriculum.

**Life Skills Modules**
As reflected on page 304.
HIGHER NITEC IN IT APPLICATIONS DEVELOPMENT (3 YEARS)

COURSE SYNOPSIS

On completion of the course, students should be able to

- Design UI/UX.
- Develop and support web applications.
- Develop and support mobile applications.
- Create and maintain content.
- Perform software testing.

JOB OPPORTUNITIES

Higher Nitec in IT Applications Development course equips students with skills and knowledge to develop web and mobile applications, as well as to create and maintain content for IT applications and services. Some of the job titles held by graduates include Application Programmer, Rich Internet Application (RIA) Developer, Application Support Analyst, Web Commerce Applications Developer, UI Programmer, IT Specialist (Mobile Programmer), Mobile Applications Developer Support, Web Developer Support and Test Engineer.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Module Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Foundation Modules</td>
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<tr>
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<tr>
<td>Life Skills Modules</td>
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<tr>
<td>Cross Disciplinary Core Modules</td>
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<tr>
<td>Electives</td>
<td>8</td>
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<tr>
<td>Total</td>
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</tbody>
</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Foundation Modules

Networking Fundamentals
On completion of the module, students should be able to set up, configure, set up and troubleshoot wired and wireless network system for small office environment. They should be able to provide network support and configure devices such as switches and wireless access points.

Coding for AI
On completion of the modules, students should be able to experience the concepts of AI through no to low coding methods. Students will create basic program logic and AI model through fun and engaging project.

Operating System Essentials
On completion of the module, students should be able to install and configure operating system (OS) and application software on end user computing devices. In addition, they should also be able to perform OS maintenance and troubleshooting.

Digital Media Technologies
On completion of the module, students should be able to apply their knowledge and skills in processing appropriate digital media formats for various platforms delivery.

Fundamentals of Data
On completion of the module, students should be able to import data from external sources, perform basic data manipulation and present simple visualisation of the data.

Introduction to UI/UX
On completion of the module, students should be able to apply User Interface (UI) and User Experience (UX) development process to produce low-fidelity and high-fidelity wireframes and prototypes for websites and mobile apps.

Web Development Essentials
On completion of the module, students should be able to develop web pages using HTML and CSS.

Cybersecurity Fundamentals
On completion of the module, students should be able to apply the knowledge and essentials skills in all security domains in the cyber world - information security, systems security, network security, mobile security, physical security, ethics and laws, related technologies, defence and mitigation techniques use in protecting.

Core Modules

Software Development Practices
On completion of the module, students should be able to apply their knowledge and skills in software development methods on recommended solutions.

Programming Essentials
On completion of the module, students should be able to apply fundamental programming concepts and computational thinking for basic programs.

User Experience Development
On completion of the module, students should be able to design, develop and maintain; mobile and web interfaces. Students will also be able to create and edit graphics and develop user interfaces.

Front-end Web Development
On completion of the module, students should be able to apply the knowledge, techniques and skills to develop responsive web applications using front-end web development technologies.

Server-side Development
On completion of the module, students should be able to develop dynamic and interactive media applications.

Web Content Management
On completion of the module, students should be able to configure and publish websites, with online payment support and social media integration. Students will also learn to perform website testing.

Website Optimisation Fundamentals
Upon completion of this module, students should be able to use various tools to improve the performance of a website to drive traffic, increase conversions and grow revenue.

Industry Attachment 1
On completion of the module, students should be able to apply and integrate the skills and knowledge that they have acquired at ITE College and develop competencies in other areas not covered in the curriculum, at the workplace.

Specialisation Modules

Enterprise Web Development
On completion of the module, students should be able to develop Enterprise Web applications using techniques to manage operations of an organisation.
Mobile Apps Development
On completion of the module, students should be able to design, develop and deploy native mobile applications for various platforms.

Enterprise Solutions Development
On completion of the module, students should be able to develop, test and deploy secure web services.

Mobile Solutions Development
On completion of the module, students should be able to apply the knowledge, techniques and skills required to integrate frameworks and database into mobile applications.

Industry Attachment 2
On completion of the module, students should be able to apply and integrate the skills and knowledge that they have acquired at ITE College and develop competencies in other areas not covered in the curriculum, at the workplace.

Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN IT SYSTEMS & NETWORKS (3 YEARS)

COURSE SYNOPSIS

On completion of the course, students should be able to

- Manage computer systems and devices.
- Manage computer network.
- Support networked servers.
- Assist to manage virtualisation infrastructure.
- Implement wireless LAN.
- Implement network security.
- Assist support of IT project development.

JOB OPPORTUNITIES

Higher Nitec in IT Systems & Networks graduates can be employed by IT-users and supplier organisations. The IT users are organisations (public, private, MNCs and SMEs) using computer systems (networked or stand-alone) in their business operations. The IT suppliers are companies providing computer hardware/software and IT services.

Some of the job titles held by graduates are IT Specialist, Associate Infrastructure Support Engineer, IT Technician, Network Support Technician, IT Technical Support Specialist, Associate System Administrator, Desktop Support Engineer and Network Traffic Engineer.

There are excellent opportunities for career advancement to supervisory positions and beyond.

CERTIFICATION

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Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Foundation Modules

Networking Fundamentals
On completion of the module, students should be able to set up, configure, set up and troubleshoot wired and wireless network system for small office environment. They should be able to provide network support and configure devices such as switches and wireless access points.

Coding for AI
On completion of the modules, students should be able to experience the concepts of AI through no to low coding methods. Students will create basic program logic and AI model through fun and engaging project.

Operating System Essentials
On completion of the module, students should be able to install and configure operating system (OS) and application software on end user computing devices. In addition, they should also be able to perform OS maintenance and troubleshooting.

Digital Media Technologies
On completion of the module, students should be able to apply their knowledge and skills in processing appropriate digital media formats for various platforms delivery.

Fundamentals of Data
On completion of the module, students should be able to import data from external sources, perform basic data manipulation and present simple visualisation of the data.

Introduction to UI/UX
On completion of the module, students should be able to apply User Interface (UI) and User Experience (UX) development process to produce low-fidelity and high-fidelity wireframes and prototypes for websites and mobile apps.

Web Development Essentials
On completion of the module, students should be able to develop web pages using HTML and CSS.

Cybersecurity Fundamentals
On completion of the module, students should be able to apply the knowledge and essentials skills in all security domains in the cyber world - information security, systems security, network security, mobile security, physical security, ethics and laws, related technologies, defence and mitigation techniques use in protecting.

Core Modules

Computer Maintenance
On completion of the module, students should be able to perform installation and configuration of hardware components and peripherals of end user computing devices. In addition, they should also be able to perform end user computing devices maintenance and troubleshooting of hardware problems.

Networking Technology
On completion of the module, students should be able to apply the fundamentals of computer networking in relation to the OSI model. They should also be able to configure and set up wired and wireless local area network (LAN) including network segmentation. Students will also be able to perform network documentation and monitor network performance.

Enterprise Networking
On completion of the module, students should be able to configure and set up a switched and routed network with Virtual LANs (VLANs) as well as set up a wide area network (WAN), implement access control lists and troubleshoot common network issues and problems.

System Administration
On completion of the module, students should be able to set up server operating systems and perform system administration tasks such as user management, resource management and performance monitoring. Students should also be able to configure file server services and implement basic system security.

System Hardening & Infrastructure Services
On completion of the module, students should be able to perform server security hardening and manage infrastructure services. Students should also be able to automate server administration and implement high-availability systems.

Virtualisation Fundamentals
On completion of the module, students should be able to set up virtualisation server and environment. They should also be able to perform backup and recovery of VMs for fault tolerance. They should be able to perform basic troubleshooting with hypervisor and VMs.
Cloud System Administration
On completion of the module, students should be able to administer cloud / virtualisation platform and its associated services, monitor resource utilisation on the hypervisor, troubleshoot performance and connectivity issues as well as secure the cloud / virtualised infrastructure. They will also be introduced to commercially available cloud services, including containers and be able to utilise them.

Industry Attachment 1
On completion of the modules, students should be able to integrate and apply a cluster of key technical, social and methodological competencies related to their field of study.

Specialisation Modules

Scripting Essentials
On completion of the module, students should be able to apply basic structured thinking skill to develop script to perform basic system related tasks and activities.

Administrative Scripting
On completion of the module, students should be able to provide programming support to IT system automation and other related project.

Wireless Networking Fundamentals
On completion of the module, students should be able to install, configure and secure Wireless Local Area Networks (WLANs). They should also be able to perform monitoring of WLAN.

Infrastructure Security
On completion of the module, students should be able to configure firewall appliances, intrusion detection and prevention systems, firewall policies and set up Virtual Private Networks. They should also be able to implement appropriate technologies to protect against security attacks such as spams, spyware and worms/viruses including the set-up of end-point security measures.

Industry Attachment 2
On completion of the modules, students should be able to integrate and apply a cluster of key technical, social and methodological competencies related to their field of study.

Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN SECURITY SYSTEM INTEGRATION (3 YEARS)

COURSE SYNOPSIS

On completion of the course, students should be able to

- Set up wired and wireless networks to accommodate IP-ready security systems.
- Set up backend security network infrastructure to support security systems.
- Troubleshoot and maintain security systems.
- Design and implement security system solutions to meet client’s requirements.
- Manage security system installation projects.
- Integrate and implement centralised security management system.

JOB OPPORTUNITIES

With the strong support of the Security Systems Association of Singapore (SSAS) which represents more than 50 major security systems solution providers, Higher Nitec in Security System Integration graduates will be readily employed by SSAS members and security system integrators. Some of the job titles held by graduates include Technical Specialist, Security Systems Specialist and Senior Technician.

CERTIFICATION

Credits required for certification:

Foundation Modules : 24
Core Modules : 25
Specialisation Modules : 20
Life Skills Modules : 10
Cross Disciplinary Core Modules : 9
Electives : 8
Total : 96

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
**MODULE OBJECTIVES**

**Foundation Modules**

**Electrical & Cabling Technology**
On completion of the module, students should be able to set up, maintain and troubleshoot cabling systems.

**CAD & Soldering**
On completion of the module, students should be able to create and update CAD drawings, as well as build electronic prototypes.

**Digital Electronics**
On completion of the module, students should be able to set up and test digital electronic circuits.

**Analogue Electronics**
On completion of the module, students should be able to set up and test analogue electronic circuits.

**Programming Fundamentals**
On completion of the module, students should be able to apply programming constructs such as variables, programming syntax, sequential programming and control flow statements, in a programmable controller-based system.

**IoT Fundamentals**
On completion of the module, students should be able to configure, establish communication and process data from IoT environmental elements such as devices, nodes, gateways and cloud.

**Networking & Communications Fundamentals**
On completion of the module, students should be able to set up, configure, maintain and test computer and communication networks. They should also be able to identify the various network topologies and protocols, and troubleshoot network connectivity faults.

**Cybersecurity Fundamentals**
On completion of the module, students should be able to apply the knowledge and essentials skills in all security domains in the cyber world - information security, systems security, network security, mobile security, physical security, ethics and laws, related technologies, defense and mitigation techniques use in protecting.

**Core Modules**

**System Administration**
On completion of the module, students should be able to set up server operating systems and perform system administration tasks such as user management, resource management and performance monitoring. Students should also be able to configure file server services and implement basic system security.

**Networking for Security Systems**
On completion of this module, students should be able to plan, install, configure and troubleshoot computer network system for the wired and wireless LAN environment.

**CAD for Security Systems**
On completion of this module, students should be able to create, update and interpret electrical and security system installation drawings.

**Intrusion Detection System**
On completion of this module, students should be able to install, maintain and troubleshoot intrusion detection systems in various security environments.

**Access Control System**
On completion of this module, students should be able to install, maintain and troubleshoot access control systems in various security environments.

**Video Surveillance Technology**
On completion of this module, students should be able to select, test and troubleshoot video surveillance devices.

**Video Surveillance System**
On completion of this module, students should be able to set up, maintain and troubleshoot surveillance systems.

**Industry Attachment 1**
On completion of the module, students should be able to apply and integrate the skills and knowledge that they have acquired at ITE College and develop competencies in other areas not covered in the curriculum, at the workplace.

**Specialisation Modules**

**Security System Integration**
On completion of the module, students should be able to design, install, maintain and troubleshoot an integrated security system.
**Project Management**
On completion of the module, students should be able to plan, execute and monitor security system project using the various project management tools and techniques to meet the project scope, schedule and cost requirements.

**AI for Security Systems**
On completion of the module, students should be able to establish, implement, test and troubleshoot AI and Automation in security system.

**Cybersecurity for Physical System**
On completion of the module, students should be able to identify cybersecurity threats and vulnerabilities, utilize technologies and tools to mitigate them.

**Industry Attachment 2**
On completion of the module, students should be able to apply and integrate the skills and knowledge that they have acquired at ITE College and develop competencies in other areas not covered in the curriculum, at the workplace.

**Life Skills Modules**
As reflected on page 304.
HIGHER NITEC IN AUTOMOTIVE ENGINEERING

COURSE SYNOPSIS

On completion of the course, students should be able to

- Perform engine systems diagnostics.
- Perform electrical systems diagnostics.
- Perform chassis diagnostics.
- Perform driveline diagnostics.

JOB OPPORTUNITIES

Higher Nitec in Automotive Engineering graduates are employed by fleet maintenance workshops, service garages, franchised motor dealers, vehicle inspection centres and government agencies. Common job titles may include Senior Technician, Team Leader and Senior Vehicle Inspector. There are excellent opportunities for career advancement to supervisory positions and beyond.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Core Modules</th>
<th>49</th>
</tr>
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<tbody>
<tr>
<td>Life Skills Modules</td>
<td>9</td>
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<tr>
<td>Elective Modules</td>
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<td><strong>Total</strong></td>
<td><strong>62</strong></td>
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</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
**MODULE OBJECTIVES**

**Core Modules**

**Automotive Mechanics**
On completion of the module, students should be able to observe workplace health and safety, extract technical information, select and use lifting equipment and hand tools to disassemble and reassemble automotive systems and components, perform basic maintenance of chassis and undercarriage as well as transmission system and components, and handle proper disposal of automotive wastes.

**Control and Transmission Technology**
On completion of the module, students should be able to carry out servicing and perform inspection of the brake system, chassis and undercarriage, transmission system and supplemental restraint systems on a vehicle.

**Engine Technology**
On completion of the module, students should be able to perform inspection of the air intake system, fuel system, engine management system, emission control system, and engine mechanical system on a vehicle.

**Automotive Electrics**
On completion of the module, students should be able to interpret diagnostics results and rectify faults in vehicle electrical systems, electronic circuits and air-conditioning system.

**Engine and Electrical Systems Diagnostics**
On completion of the module, students should be able to conduct system fault finding with the use of diagnostic tools and equipment, and rectify faults in engine electrical, body electrical, air-conditioning, fuel, lubrication and cooling, engine mechanical, engine management and emission control systems, as well as service alternative powered vehicle’s motor and battery.

**Control and Transmission Diagnostics**
On completion of the module, students should be able to interpret diagnostics results and rectify faults on vehicle wheel alignment, drive-line, suspension and steering, braking and transmission systems on petrol or diesel powered vehicles as well as service alternative powered vehicle’s powertrain.

**Industry Attachment**
On completion of the module, students should be able to apply the skills and knowledge acquired to take on a range of job scope at the company.

**Electives (General)**
As reflected on pages 300-301.

**Life Skills Modules**
As reflected on page 304.
HIGHER NITEC IN CIVIL & STRUCTURAL ENGINEERING DESIGN

COURSE SYNOPSIS

On completion of the course, students should be able to

- Prepare civil and structural layout plans.
- Prepare civil and structural components’ schedule and details such as beams, slabs, columns, foundation, roads, drainage and sewerage.
- Prepare civil and structural detailed drawings.
- Prepare shop drawings for construction.
- Liaise with engineers to resolve discrepancies and site problems.

JOB OPPORTUNITIES

Higher Nitec in Civil & Structural Engineering Design graduates are employed by government departments, statutory boards and civil structural consultancy companies in the building and construction sector. They perform a crucial role of ensuring the structural drawings, civil engineering drawings and detailed drawings on structural building are produced to meet the needs of the users such as clients, contractors, authorities, consultants and building occupants, at the different stages of the project. Some of the job titles held by graduates include Civil & Structural Draftsman, Technical Executive, Technical Officer and CAD Designer.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Category</th>
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<tbody>
<tr>
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<td><strong>Total</strong></td>
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</table>

COURSE STRUCTURE

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Engineering Graphics</td>
<td>6</td>
</tr>
<tr>
<td>Engineering Mathematics and Statics</td>
<td>8</td>
</tr>
<tr>
<td>Building Information Modelling</td>
<td>7</td>
</tr>
<tr>
<td>Building Structure and External Works</td>
<td>8</td>
</tr>
<tr>
<td>Reinforced Concrete Detailing and Design</td>
<td>8</td>
</tr>
<tr>
<td>Steel Structure Detailing and Design</td>
<td>7</td>
</tr>
<tr>
<td>Industry Attachment</td>
<td>8</td>
</tr>
<tr>
<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
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<tr>
<td>Elementary Quantities</td>
<td>2</td>
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<tr>
<td>Model Making</td>
<td>2</td>
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<tr>
<td>Land Surveying</td>
<td>2</td>
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<tr>
<td><strong>ELECTIVES (GENERAL)</strong></td>
<td></td>
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<tr>
<td>Refer to pages 300-301</td>
<td></td>
</tr>
<tr>
<td><strong>LIFE SKILLS MODULES</strong></td>
<td></td>
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<tr>
<td>Refer to page 304</td>
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</tbody>
</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Engineering Graphics
On completion of the module, students should be able to produce technical sketches, engineering detailed drawings, 3D solid modelling, and assembly drawings in accordance with ISO standards.

Engineering Mathematics and Statics
On completion of the module, students should be able to apply knowledge of mathematics to solve engineering problems involving the use of algebra, indices, logarithms, trigonometry and basic statistics. Students would also be equipped with the fundamental knowledge of statics and be able to solve engineering problems involving equilibrium of bodies subjected to forces.

Building Information Modelling
On completion of the module, students should be able to create 3D models, extract information, perform taking-off from BIM model and produce BIM components.

Building Structures and External Works
On completion of the module, students should be able to produce foundation layout plans and schedules of footing and staircase, reinforced concrete drawings of floor, staircase and, structural components such as foundations, retaining walls and detailed drawings of external works such as drains, sewers, culverts, carriageway, drainage and sewerage systems.

Reinforced Concrete Detailing and Design
On completion of the module, students should be able to create 3D models using BIM, to draw structural drawings for piling, pile caps, reinforced concrete core walls, prepare column schedules and detailed drawings of reinforced concrete beams and slabs, precast concrete components and precast beam and slab drawings.

Steel Structure Detailing and Design
On completion of the module, students should be able to create 3D steel structure models using BIM software and to produce steel structure working drawings with detailed connections of steel members.

Industry Attachment
Students will undertake a 6-month industry attachment at the civil structural consultancy companies in the building and construction sector to complement and reinforce the skills and knowledge acquired at ITE and to develop competencies in other specialised areas.

Electives (Course Specific)

Elementary Quantities
On completion of the module, students should be able to calculate and prepare the bill of quantities for simple building work in accordance with Civil Engineering Standard Method of Measurement Code.

Model Making
On completion of the module, students should be able to construct a scaled model of a structural frame.

Land Surveying
On completion of the module, students should be able to perform simple levelling work, set out horizontal angles and calculate reduced levels from field bookings.

Electives (General)
As reflected on pages 300-301.

Life Skills Modules
As reflected on page 304.
**HIGHER NITEC IN ELECTRICAL ENGINEERING**

**COURSE SYNOPSIS**

On completion of the course, students should be able to

- Ensure all electrical and related works are carried out in compliance with electrical and BIM drawings, specifications, relevant workplace safety and health regulations and codes of practice.
- Manage maintenance of electrical motor installation and control systems.
- Manage maintenance of electrical installations, electrical equipment and fibre-optic control network, intelligent control, smart monitored emergency lighting, fire and lightning protection systems in buildings.
- Manage operation and maintenance of smart home, intelligent building control and remote monitoring and data analytics systems.
- Manage operation and maintenance of advanced field bus instrumentation and solar PV systems.

Remarks:
Graduates who have acquired two years of relevant experience in the electrical work performed by a licensed electrician would be eligible to apply to Energy Market Authority (EMA) to sit for the test leading to the award of an Electrician Licence issued by EMA.

**JOB OPPORTUNITIES**

Higher Nitec in Electrical Engineering graduates are employed by government departments, statutory boards and private companies. They perform a crucial role of ensuring that electrical installations, equipment and systems are operational. Some of the job titles held by Higher Nitec in Electrical Engineering graduates include Electrical Maintenance Technical Officer or Supervisor, Electrical Engineering Technician, Electrical Power Technician, Engineering Assistant, Instrumentation Technician, Electrical & Electronics Marketing Executive and Production Supervisor. There are excellent opportunities for career advancement to supervisory positions and beyond.

**CERTIFICATION**

Credits required for certification:

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Core Modules</td>
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**COURSE STRUCTURE**

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<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
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<tr>
<td><strong>CORE MODULES</strong></td>
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</tr>
<tr>
<td>Electrical Design and Installation</td>
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<tr>
<td>Electrical Power and Distribution</td>
<td>7</td>
</tr>
<tr>
<td>Motor Control and Drives</td>
<td>7</td>
</tr>
<tr>
<td>Predictive Maintenance and Servicing</td>
<td>6</td>
</tr>
<tr>
<td>Intelligent Building Systems</td>
<td>6</td>
</tr>
<tr>
<td>Solar Photovoltaic Systems</td>
<td>5</td>
</tr>
<tr>
<td>Instrumentation and Control Systems</td>
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<tr>
<td>Industry Attachment</td>
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<tr>
<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
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</tr>
<tr>
<td>Sensor Technology</td>
<td>2</td>
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<tr>
<td>SCADA</td>
<td>2</td>
</tr>
<tr>
<td>Structured Cabling</td>
<td>2</td>
</tr>
<tr>
<td>Applied Pneumatic Control</td>
<td>2</td>
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<tr>
<td>Power Quality</td>
<td>2</td>
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<tr>
<td>Lighting Effects and Applications</td>
<td>2</td>
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<tr>
<td><strong>ELECTIVES (JOINT ITE-INDUSTRY)</strong></td>
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<tr>
<td>PLC Control Builder</td>
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<td><strong>ELECTIVES (GENERAL)</strong></td>
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</tr>
<tr>
<td>Refer to pages 300-301</td>
<td></td>
</tr>
</tbody>
</table>
LIFE SKILLS MODULES

Refer to page 304

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.

MODULE OBJECTIVES

Core Modules

Electrical Design and Installation
On completion of the module, students should be able to design, prepare electrical drawings of and maintain electrical installations in residential, industrial and commercial premises in compliance with relevant local standards, regulations and codes of practice.

Electrical Power and Distribution
On completion of the module, students should be able to maintain electrical power and distribution system including switchboards and electrical back up supply system, perform lockout and tag out procedures and remote energy monitoring system in compliance with relevant local standards, regulations and codes of practice.

Motor Control and Drives
On completion of the module, students should be able to maintain electrical motor installations including advanced motor drives and control systems and also implement predictive and condition based maintenance in compliance with relevant local standards, regulations and codes of practice.

Predictive Maintenance and Servicing
On completion of the module, students should be able to maintain various electrical and industrial equipment and appliances, fire alarm system through the application of condition monitoring and data analysis in compliance with relevant local standards, regulations and codes of practice.

Intelligent Building Systems
On completion of the module, students should be able to program and implement smart, internet-linked control and automation solutions for residential and commercial buildings as well as maintain associated digital communication network and cabling system in compliance with relevant local standards, regulations and codes of practice.

Solar Photovoltaic Systems
On completion of the module, students should be able to maintain renewable solar energy systems and implement smart, internet-linked instrumentation and monitoring systems in compliance with relevant local standards, regulations and codes of practice.

Instrumentation and Control Systems
On completion of the module, students should be able to maintain instrumentation and control systems and associated remote, smart internet-linked monitoring systems (Industry 4.0 and IoT) in compliance with relevant local standards, regulations and codes of practice.

Industry Attachment
Students will be attached to relevant companies to complement and reinforce the skills and knowledge acquired at ITE and to gain professional and working experience.

Electives (Course Specific)

Sensor Technology
On completion of the module, students should be able to explain the principles of operation, characteristics and applications of various sensors in industrial and electrical engineering works.

SCADA
On completion of the module, students should be able to explain the basic configuration and provide an overview of a SCADA system. They are also trained to explain the techniques and methods used on data acquisition, the control of the field devices, communication, applications and operation of the system.

Structured Cabling
On completion of the module, students should be able to explain the principles of structured cabling and install a standard cabling system accordingly to the relevant standard. They also should be also able to perform testing and trouble-shooting and certify the quality of structured cabling installations with both copper and fibre-optic cables.

Applied Pneumatic Control
On completion of the module, students should be able to develop control circuits based on knowledge of the construction, principles of operation and application of the various components and equipment in electromechanical, pneumatic and electro-pneumatic control systems.
Power Quality
On completion of the module, students should be able to use monitoring tools to measure power quality (PQ) in an electrical power installation. They should also be able to explain the various sources of power quality problems and their mitigation techniques.

Lighting Effects and Applications
On completion of the module, students should be able to apply the principles of lighting effects to install and maintain lighting schemes for different client requirements.

Electives (Joint ITE-Industry)

PLC Control Builder
On completion of the module, students should be able to use PLC engineering tool to configure projects based on IEC61131-3 standard with one or several applications running in PLC.

Electives (General)
As reflected on pages 300-301.

Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN ENGINEERING WITH BUSINESS

COURSE SYNOPSIS

On completion of the course, students should be able to

• Troubleshoot problems in manufacturing processes.
• Design jigs and fixtures for manufacturing.
• Initiate continuous work improvement activities to manufacturing processes.
• Perform production scheduling and material requirement planning for manufacturing processes.
• Maintain quality assurance system for manufacturing.
• Prepare necessary documents for manufacturing and assembly.
• Perform technical marketing, sales and services.

JOB OPPORTUNITIES

Higher Nitec in Engineering with Business graduates are employed by high value manufacturing industries in consumer electronics, precision engineering and equipment / products / components manufacturing companies. Some of the job titles held by graduates include Engineering Assistant, Manufacturing Engineering Technician, Production Supervisor and Quality Assurance Technician. They are also suitable to be employed as Sales Executives and Assistant Sales Engineers. There are excellent opportunities for career advancement to supervisory positions and beyond.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Modules</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>Core Modules</td>
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<td><strong>Total</strong></td>
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COURSE STRUCTURE

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<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
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<tr>
<td>Mathematics and Engineering Systems</td>
<td>7</td>
</tr>
<tr>
<td>CAD and Engineering Design</td>
<td>6</td>
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<tr>
<td>Quality Engineering</td>
<td>7</td>
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<tr>
<td>Engineering Materials and Mechanics</td>
<td>7</td>
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<tr>
<td>Elements of Business Practice</td>
<td>3</td>
</tr>
<tr>
<td>Manufacturing Processes and Prototyping</td>
<td>6</td>
</tr>
<tr>
<td>Manufacturing Engineering</td>
<td>6</td>
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<tr>
<td>Fundamentals of Marketing</td>
<td>5</td>
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<tr>
<td>Industry Attachment</td>
<td>4</td>
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<tr>
<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
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</tr>
<tr>
<td>Conventional Machining</td>
<td>2</td>
</tr>
<tr>
<td>Jig and Fixture Design</td>
<td>2</td>
</tr>
<tr>
<td>Product Prototyping</td>
<td>2</td>
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<tr>
<td><strong>ELECTIVES (GENERAL)</strong></td>
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<tr>
<td>Refer to pages 300-301</td>
<td></td>
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<tr>
<td><strong>LIFE SKILLS MODULES</strong></td>
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<tr>
<td>Refer to page 304</td>
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</tbody>
</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Mathematics and Engineering Systems
On completion of the module, students should be able to solve engineering problems involving algebra, indices, graphs, trigonometry and statistics, and to perform electrical installation as well as connect pneumatic and hydraulic systems.

CAD and Engineering Design
On completion of the module, students should be able to create 2D drawings of engineering components using a CAD system as well as produce 3D solid models and also to design a mechanical system comprising various machine elements.

Quality Engineering
On completion of the module, students should be able to interpret the Workshop Safety and Health (WSH) regulations, the requirements of ISO 9001 and 14001 under Quality Management System, Lean Six Sigma, and apply fundamental quality tools and techniques for problem solving and quality inspection, and also the use of precision measuring tools with statistical process control capabilities.

Engineering Materials and Mechanics
On completion of the module, students should be able to classify engineering materials, conduct destructive and non-destructive testing and also able to apply the laws and principles of statics and dynamics to design engineering systems.

Elements of Business Practice
On completion of the module, students should be able to perform effective business communications, comply with business ethics and practices, and conduct technical sales.

Manufacturing Processes and Prototyping
On completion of the module, students should be able to perform rapid prototyping, verify and troubleshoot machine parameters and perform part programming using CAD/CAM software, and also carry out study of equipment layout and process flow in a manufacturing environment.

Manufacturing Engineering
On completion of the module, students should be able to conduct work study, perform process planning, carry out productivity improvement activities, perform manufacturing resources planning and conduct risk assessment for the workplace.

Fundamentals of Marketing
On completion of the module, students should be able to carry out technical marketing, logistics administration, sales and services in the business set up.

Industry Attachment
On completion of the module, students should be able to acquire and apply a cluster of key technical, social and methodological competencies in their occupation.

Electives (Course Specific)

Conventional Machining
On completion of the module, students should be able to perform machining operations on conventional lathe and milling machines.

Jig and Fixture Design
On completion of the module, students should be able to design and draw a drill jig, turning and milling fixture using CAD software.

Product Prototyping
On completion of the module, students should be able to create simple design of a product using 3-D CAD software and produce a 3-D model of it using basic prototyping devices.

Electives (General)
As reflected on pages 300-301.

Life Skills Modules
As reflected on page 304.
**HIGHER NITEC IN FACILITY MANAGEMENT**

**COURSE SYNOPSIS**

On completion of the course, students should be able to

- Supervise and coordinate building maintenance work such as air-conditioning, electrical, mechanical, fire protection, building, plumbing and sanitary systems, and general services.
- Supervise fire-safety related tasks assigned by Fire Safety Manager to ensure safe and efficient operations of buildings and facilities.
- Assign and manage subordinates in the execution of FM (facility management) activities.
- Perform maintenance duties as and when needed.

**JOB OPPORTUNITIES**

*Higher Nitec* in Facility Management graduates could be employed directly by large establishments who manage their own facility or indirectly via facility management companies. They will be able to take on jobs as Facility Technical Officer, Facility Supervisor and Facility Executive. They could also take on the role of workplace safety & health supervisor and/or fire safety manager if they passed Workplace Safety & Health Management module under the direct recognition scheme by the Ministry of Manpower and/or Fire Safety Management elective module accredited by Singapore Civil Defence Force.

**CERTIFICATION**

Credits required for certification:

<table>
<thead>
<tr>
<th>Category</th>
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<tr>
<td>Core Modules</td>
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<td><strong>Total</strong></td>
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</table>

**COURSE STRUCTURE**

**Module Title** | **Credits**
--- | ---
**CORE MODULES**  
Mechanical Systems and Services | 6  
Electrical Systems and Services | 7  
Air-Conditioning Systems | 7  
Building Management System | 6  
Workplace Safety and Health Management | 5  
Building Services Systems Analysis and Management | 8  
Project Management and Supervision | 5  
Industry Attachment | 4  
**ELECTIVES (COURSE SPECIFIC)**  
Water Efficiency in Building | 2  
Energy Audit and Management | 4  
Green Building Technology | 2  
Introduction to Overhaul of Reciprocating Compressor | 2  
Building Information Management (BIM) for Facilities Management | 2  
**ELECTIVES (JOINT ITE-INDUSTRY)**  
Fire Safety Management | 6  
**ELECTIVES (GENERAL)**  
Refer to pages 300-301

**LIFE SKILLS MODULES**  
Refer to page 304

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.

*Nitec in Facility Technology (Landscaping Services) or Nitec in Facility Technology (Vertical Transportation) graduates with minimum GPA of 3.0 and had completed “Air-Conditioning and Building Management System” and “Building Fire-Fighting and Protection Systems” elective modules can apply to progress directly to second year of study in Higher Nitec in Facility Management course.*
MODULE OBJECTIVES

Core Modules

Mechanical Systems and Services
On completion of the module, students should be able to interpret building mechanical system plan, perform inspection of automated doors and pump system, conduct operational test of standby generator, as well as maintain the fire-protection and fire-fighting systems.

Electrical Systems and Services
On completion of the module, students should be able to interpret electrical circuit diagrams, conduct continuity and insulation resistance tests, and coordinate setting up of AV system. They should be able to inspect the lightning protection and earthing system, conduct first line maintenance of uninterruptable power supply, and coordinate maintenance of Extra Low Voltage system as well as the power and lighting circuits.

Air-Conditioning Systems
On completion of the module, students should be able to maintain air-conditioning system and supervise components replacement, maintain chilled water centralised system as well as cold room refrigeration system.

Building Management System
On completion of the module, students should be able to interpret the various types of control systems linked to Building Management System (BMS), conduct system wellness check for main and sub-systems, manage common causes of faults, generate and compile system reports linked to BMS, and also supervise manned security services.

Workplace Safety and Health Management
On completion of the module, students should be able to apply the Workplace Safety and Health (WSH) knowledge and skills to assist in the identification of hazards and implementation of risk control measures, conduct inspection, comply and communicate WSH legal requirements, perform incident reporting, implement WSH management process, perform effective communication and report on the outcome of WSH inspection.

Building Services Systems Analysis and Management
On completion of the module, students should be able to interpret architectural drawings, maintain fittings and fixtures, plumbing sanitary systems, as well as the masonry works of the building. Students should be able to supervise swimming pool maintenance, landscaping services, pest control and cleaning activities, monitor lift and escalator maintenance, as well as carry out inspection of painting works and manage electronic car park system.

Project Management and Supervision
On completion of the module, students should be able to plan for resource deployment and work schedule, monitor project activities to ensure compliance and in accordance with safety, security and statutory requirements, and communicate with stakeholders to ensure co-operation and smooth completion of project.

Industry Attachment
Students will be attached to relevant companies to complement and reinforce the skills and knowledge acquired at ITE and to gain professional and working experience.

Electives (Course Specific)

Water Efficiency in Building
On completion of the module, students should be able to conduct water audit and apply water efficiency measures to reduce water consumption in commercial/residential buildings.

Energy Audit and Management
On completion of the module, students should be able to conduct on-site energy audit using appropriate measuring instruments and tools, and recommend corrective measures for energy savings.

Green Building Technology
On completion of the module, students should be able to assist engineers to carry out design, fabrication, modification and commissioning of Green facilities and assist engineers in the operation, management and services related to Green facilities.

Introduction to Overhaul of Reciprocating Compressor
On completion of the module, students should be able to identify and isolate faulty compressor; perform overhauling of reciprocating compressor; replace pistons, rings, cylinders, suction valve, discharge valve, crankshaft and main bearings while maintaining workplace health and safety.
Building Information Modelling (BIM) for Facilities Management
On completion of the module, students should be able to interpret two-dimensional architectural layout drawings, generate three-dimensional modelling using appropriate software and retrieve relevant information on building services systems, as well as applying the effective modelling and visualisation techniques for presenting project designs.

Electives (Joint ITE-Industry)

Fire Safety Management
On completion of the module, students should be familiar with the basic working knowledge on fire science and fire safety engineering, the various types of fire protection installations, operation and maintenance, and the means to respond to fire alarm activation, fight incipient fire, and performing rescue and evacuation exercises. In addition, they should be equipped with the basic knowledge of first aid, the basic requirement of fire safety installations and maintenance including building inspection and testing of fire protection system, and the requirements of roles and responsibilities of Fire Safety Managers.

Electives (General)
As reflected on pages 300-301.

Life Skills Modules
As reflected on page 304.
COURSE SYNOPSIS

On completion of the course, students should be able to prepare working drawings and assist in the design of the following building facility systems with application software:

- Air-conditioning and ventilation systems
- Electrical installation and control systems
- Fire protection and fighting systems
- Water supply and sanitary systems

JOB OPPORTUNITIES

*Higher Nitec* in Integrated Mechanical & Electrical Design graduates are employed by companies in the building industry. These include companies providing engineering consultancy services involved in building services such as electrical installations, air-conditioning ducting, fire protection, water supply and sanitary plumbing. Some of the job titles held by graduates include Facility Systems CADD Specialist, Facility Systems Assistant Designer and Mechanical & Electrical Draughtsman. There are excellent opportunities for career advancement to supervisory positions and beyond.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Core Modules</td>
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<tr>
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<td><strong>Total</strong></td>
<td>66</td>
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</tbody>
</table>

Module Title | Credits |
---|---------|
**Core Modules** |  
Engineering Graphics | 6  
Engineering Mathematics and Statics | 8  
Building Information Modelling | 7  
Electrical System Design | 8  
Air-Conditioning and Ventilation System Design | 8  
Plumbing and Fire Protection System Design | 8  
Industry Attachment | 8  

**Electives (Course Specific)**

- Green Building Technology | 4  

**Electives (Inter-Disciplinary)**

- Engineering Project Management | 2  
- Land Surveying | 2  

**Electives (General)**

Refer to pages 300-301

**Life Skills Modules**

Refer to page 304

*Note:* The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Engineering Graphics
On completion of the module, students should be able to produce technical sketches, engineering detailed drawings, 3D solid modelling, and assembly drawings in accordance with ISO standards.

Engineering Mathematics and Statics
On completion of the module, students should be able to apply knowledge of mathematics to solve engineering problems involving the use of algebra, indices, logarithms, trigonometry and statistics. Students would also be equipped with the fundamental knowledge of statics, and be able to solve engineering problems involving equilibrium of bodies subjected to forces.

Building Information Modelling
On completion of the module, students should be able to create 3D models, extract information, perform taking-off from BIM model and produce BIM components.

Electrical System Design
On completion of the module, students should be able to perform design on electrical system for buildings, and prepare the drawings in accordance to the standard codes of practice and government regulations.

Air Conditioning and Ventilation System Design
On completion of the module, students should be able to estimate the cooling load of a building, create 3D models and perform design on air-conditioning ducting, and prepare working drawings for ducting layouts and related pipework using catalogues and in accordance to the standard codes of practice and government regulations.

Plumbing and Fire Protection System Design
On completion of the module, students should be able to produce piping layouts and prepare drawings on plumbing system, sanitary system and sprinkler system in accordance to the standard codes of practice and government regulations.

Industry Attachment
Students will be attached to M&E consultant companies to complement and reinforce the skills and knowledge acquired at ITE and to develop competencies in other specialised areas.

Electives (Course Specific)

Green Building Technology
On completion of the module, students would be equipped with the fundamental skills and knowledge of green building technologies and design, and incorporate environment-friendly features in building facility design.

Electives (Inter-disciplinary)

Engineering Project Management
On completion of the module, students should be able to apply the tools and techniques that enable the project team to organise and manage their project work to meet requirements and challenges.

Land Surveying
On completion of the module, students should be able to perform simple levelling work, set out horizontal angles and calculate reduced levels from field bookings.

Electives (General)
As reflected on pages 300-301.

Life Skills Modules
As reflected on page 304.
**COURSE SYNOPSIS**

On completion of the course, students should be able to

- Organise, coordinate and oversee various aspects of landscaping maintenance and construction works.
- Supervise and coordinate deployment of workforce.
- Supervise the selection and procurement of plants and planting materials for landscaping construction and maintenance works.
- Perform scheduling and implement maintenance plans for common turf and park areas.
- Oversee the maintenance plan for equipment and machinery.
- Supervise the undertaking of plant health care programs.
- Supervise the propagation of plants, undertake nursery operations, and maintain nursery plants and facilities.
- Assist in the supervision of installation and maintenance for skyrise greenery and other green infrastructure.
- Assist in the supervision of arboriculture operations and maintain tree health and safety.
- Interpret, prepare and present landscape design drawings.

**JOB OPPORTUNITIES**

*Higher Nitec* in Landscape Management & Design graduates could be employed as Landscape Supervisor in the landscaping construction and maintenance companies. Graduates could also work as Assistant Horticulturists, Assistant Arborists and Landscape Coordinators in the related landscaping sectors. In addition, they could be employed by building maintenance companies to oversee the installation and maintenance of skyrise greenery, arboriculture operations and nursery operations.

**CERTIFICATION**

Credits required for certification:

- Core Modules : 53
- Life Skills Modules : 10
- Elective Modules : 6
- **Total** : 69

**COURSE STRUCTURE**

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Nursery Production</td>
<td>7</td>
</tr>
<tr>
<td>Arboriculture Operations</td>
<td>7</td>
</tr>
<tr>
<td>Sports Turf Operations</td>
<td>7</td>
</tr>
<tr>
<td>Landscape Operations</td>
<td>7</td>
</tr>
<tr>
<td>Landscape Design and Skyrise Greenery</td>
<td>8</td>
</tr>
<tr>
<td>Landscape Project Management and Coordination</td>
<td>6</td>
</tr>
<tr>
<td>Horticulture Sciences and Parks Practices</td>
<td>7</td>
</tr>
<tr>
<td>Industry Attachment</td>
<td>4</td>
</tr>
<tr>
<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
<td></td>
</tr>
<tr>
<td>Elementary Land Surveying</td>
<td>3</td>
</tr>
<tr>
<td>Introduction to Urban Farming</td>
<td>3</td>
</tr>
<tr>
<td><strong>ELECTIVES (INTER-DISCIPLINARY)</strong></td>
<td></td>
</tr>
<tr>
<td>Water Efficiency in Building</td>
<td>2</td>
</tr>
<tr>
<td>Green Building Technology</td>
<td>2</td>
</tr>
<tr>
<td><strong>ELECTIVES (GENERAL)</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to pages 300-301</td>
<td></td>
</tr>
<tr>
<td><strong>LIFE SKILLS MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to page 304</td>
<td></td>
</tr>
</tbody>
</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Nursery Production
On completion of the module, students should be able to perform management and maintenance works in a plant production nursery. They should also be able to perform tasks such as re-potting, propagation, harvesting, and maintenance of nursery facilities and customer service. In addition, students should be able to perform identification of plant pests and diseases.

Arboriculture Operations
On completion of the module, students should be able to perform basic tree structural safety inspection and tree health inspection. They should be able to assist in the supervision of tree maintenance works including planting, transplanting, pruning, removal, selection, establishment and the implementation of maintenance plan for arboriculture equipment and tools.

Sports Turf Operations
On completion of the module, students should be able to supervise the installation, maintenance and first line troubleshooting of drainage and irrigation systems in turf areas on golf courses and sports turf. They should also be able to perform integrated pest management program including pests, diseases, disorders and soil analysis. In addition, they should be able to identify the appropriate materials, tools and equipment for turf maintenance, and supervise the implementation of turf nutrition plan and maintenance plan for common turf areas.

Landscape Operations
On completion of the module, students should be able to supervise the maintenance and implementation of various landscape operations including softscapes, landscape features and facilities. In addition, they should be able to supervise the operation and maintenance of basic landscape machinery and equipment.

Landscape Design and Skyrise Greenery
On completion of the module, students should be able to assist in designing sustainable, themed and cultural landscapes with spatial planning, and prepare site layout. In addition, students should be able assist in designing, managing, installation and maintenance of skyrise greenery.

Landscape Project Management and Coordination
On completion of the module, students should be able to interpret landscape maintenance contract specifications and drawings, assist in the implementation of procurement plans and project schedules. In addition, students should be able to supervise environmental control measures and verify as-built drawings on site.

Horticulture Sciences and Parks Practices
On completion of the module, students should be able to apply the fundamental knowledge of plant anatomy, morphology, taxonomy and nutrition, and soil science to analyse and identify the common plant healthcare issues. Students should be able to supervise the implementation of sustainable horticulture practices, suitable soil amendments, plant healthcare and integrated pest management plans in accordance to horticulture and landscape industry requirements. In addition, students should be able to assist in the managing of Parks recreation, events and visitor-ship, and supervise the implementation of Parks maintenance contracts.

Industry Attachment
Students will undergo 3 months of internship training in landscaping construction and maintenance companies to reinforce the skills and knowledge acquired at the training institute and to develop competencies in other specialised areas.

Electives (Course Specific)

Elementary Land Surveying
On completion of the module, students should be able to perform a site survey using basic surveying equipment. Students will be able to set up and use the surveying equipment, conduct a closed survey and verify basic survey plan to incorporate levels and contours according to landscape specifications.

Introduction to Urban Farming
On completion of the module, students should be able to perform basic urban farming techniques to achieve sustainable farming outcome. Students will be able to set up urban farming systems using different medium such as water based and soil based system, incorporating technology, such as use of LED lightings to enhance the photosynthesis of crops for indoor setting.
 Electives (Inter-disciplinary)

Water Efficiency in Building
On completion of the module, students should be able to conduct water audit and apply water efficiency measures to reduce water consumption in commercial/residential buildings.

Green Building Technology
On completion of the module, students would be equipped with the fundamental skills and knowledge of green building technologies and design, and incorporate environment-friendly features in building facility design.

 Electives (General)
As reflected on pages 300-301.

 Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN MARINE ENGINEERING

COURSE SYNOPSIS

On completion of the course, students should be able to

• Perform alignment of marine machinery.
• Perform maintenance of marine control circuits.
• Perform installation and repair of marine machinery.
• Perform supervision work on machining work.
• Perform defect diagnosis of marine systems.
• Assist to execute commissioning and testing activities.
• Perform verification of measuring instruments.
• Perform design and fabrication of jigs and fixtures.
• Perform quality control and assurance.
• Perform inspection of ship systems and machinery components.
• Perform basic maintenance of electrical equipment.

JOB OPPORTUNITIES

Higher Nitec in Marine Engineering graduates are employed by the marine and offshore industry such as marine services contractors, marine equipment manufacturers and suppliers, marine fleet operators and the shipyards. These graduates can provide services such as maintenance and repair of marine systems, assist in executing, commissioning and testing activities, calibration and instrumentation work, quality control and assurance, inspection of ship systems and machinery components. Some of the job titles held by graduates include Assistant Supervisor (Mechanical) / Trainee Supervisor (Mechanical) / Supervisor (Mechanical) / Foreman (Mechanical). There are excellent opportunities for career advancement to supervisory positions and beyond.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Module Type</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
<td>55</td>
</tr>
<tr>
<td>Life Skills Modules</td>
<td>9</td>
</tr>
<tr>
<td>Elective Modules</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>68</td>
</tr>
</tbody>
</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
### MODULE OBJECTIVES

#### Core Modules

**Quality Engineering**
On completion of the module, students should be able to conduct preliminary safety inspection, perform hazard identification and risk assessment. Students should also be able to verify general arrangement drawings, monitor quality control systems, perform inspection work on brazed joints, heat treatment of materials, cable arrangement, electrical circuits, and perform dimensional checks of engineering components.

**Ship Systems**
On completion of the module, students should be able to service, maintain propulsion components system, pneumatic and hydraulic control system components and perform inspection work on deck machinery and alignment of marine machinery.

**Marine Propulsion System**
On completion of the module, students should be able to troubleshoot and rectify faults in marine propulsion systems, recondition engine components, perform defect diagnosis, measure and adjust engine functional clearances.

**Marine Workshop Technology**
On completion of the module, students should be able to produce 2-D CAD drawings, perform basic arc welding, gas cutting, machine screw threads and components most commonly used in shipboard repairs. Students should also be able to design, modify and fabricate jigs and fixtures.

**Marine Auxiliary Systems**
On completion of the module, students should be able to inspect, troubleshoot and rectify machinery components of marine auxiliary systems typically installed on board marine vessels.

**Marine Control Systems and Instrumentation**
On completion of the module, students should be able to produce electrical single-line drawings, maintain DC and AC equipment, check simple magnetic circuits and systems’ parameter, adjust governor setting, and perform functional tests on control systems typically installed on marine vessels.

**Industry Attachment**
Students will undertake a 6-month industry attachment at shipyards, marine related workshop or work place to gain hands-on marine related practical training.

#### Electives (Course Specific)

**Engineering Watchkeeping**
On completion of the module, students should be conversant with the requirements to maintain a safe engineering watch and seaworthiness of the ship, operate main and auxiliary marine machinery and control systems, operate marine electrical power distribution and to ensure compliance with marine pollution prevention requirements.

**Shipboard Legislation and Resource Management**
On completion of the module, students should be conversant with maintaining operational and maintenance documentation, monitoring compliance with maritime legislative requirements, managing human factor errors and practicing good leadership and teamwork on board ships.

#### Electives (Inter-disciplinary)

**Basic Naval Architecture**
On completion of the module, students should be able to produce lines plans drawings from offset tables, perform ship form and stability calculations.

**Ship and Offshore Survey**
On completion of the module, students should be able to coordinate vessel survey activities, perform survey on steelwork and produce survey report on recommendations of rectified works.

**Marine Project Planning and Management**
On completion of the module, students should be able to plan, track and monitor projects using project management software.

#### Electives (General)
As reflected on pages 300-301.

#### Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN MARINE & OFFSHORE TECHNOLOGY

COURSE SYNOPSIS

On completion of the course, students should be able to

- Interpret general arrangement drawings, pipe and instrument drawings, welding procedure specifications, and test procedures.
- Perform preliminary design of pipe routing plan.
- Perform non-destructive tests on weld metals.
- Perform inspection on brazed joints, pre-welding and post-welding, and alignment of pumps.
- Assist in system testing and commissioning of marine auxiliary system and drilling system.
- Perform planning of work activities such as lifting, erection of supports for assembly works, manpower deployment and work schedule.
- Perform supervision on fabrication and welding.
- Perform quality control checks of welding, painting and blasting, insulation, machinery and electrical installations.

JOB OPPORTUNITIES

Higher Nitec in Marine & Offshore Technology graduates can be employed by shipyards, and other supporting companies which provide services on the repair, fabrication, refurbishment of all types of vessels, offshore structures in the marine and offshore industry. Some of the job titles held by graduates include Assistant Supervisor, Trainee Supervisor, Assistant Marine Supervisor and Foreman. There are excellent opportunities for career advancement to supervisory positions and beyond.

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MODULE OBJECTIVES

Core Modules

Quality Engineering
On completion of the module, students should be able to conduct preliminary safety inspection, perform hazard identification and risk assessment. Students should also be able to verify general arrangement drawings, monitor quality control systems, perform inspection work on brazed joints, heat treatment of materials, cable arrangement, electrical circuits, and perform dimensional checks of engineering components.

Ship Systems
On completion of the module, students should be able to service, maintain propulsion components system, pneumatic and hydraulic control systems components; perform inspection work on deck machinery and alignment of marine machinery.

Welding Technology
On completion of the module, students should be able to interpret welding procedures, perform butt, fillet, groove weld joints using submerged arc welding, shield metal arc welding, flux-cored arc welding, and gas tungsten arc welding in flat, horizontal and vertical positions. Students should also be able to rectify weld defects, perform non-destructive tests on weld metals and do operational calibration of welding machine.

Fabrication Technology
On completion of the module, students should be able to produce 2-D CAD drawings and sketches of 3-D assembly drawings. Students should also be able to plan resources and work schedules, perform structural markings, read lines plan drawings, carry out development of plates and pipes, material surface inspections, nesting and take-off and prepare load for lifting operations.

Pipe Design and Systems
On completion of the module, students should be able to produce P & ID drawings, isometric drawings of pipe routing plan and prepare pipes cutting plans. Students should also be able to perform pipe spool assembly, dimension checks on pipe spools, and perform leak tests on piping systems.

Offshore Technology
On completion of the module, students should be able to produce electrical single-line drawings, maintain DC and AC equipment, perform dimension control and level checks of offshore structures, co-ordinate the erection of temporary supports, perform leak and watertightness tests and assist in system testing and commissioning.

Industry Attachment
Students will undertake a 6-month industry attachment at shipyards, marine related workshop or work place to gain hands-on marine related practical training.

Electives (Course Specific)

Basic Naval Architecture
On completion of the module, students should be able to produce lines plans drawings from offset tables, perform ship form and stability calculations.

Ship and Offshore Survey
On completion of the module, students should be able to co-ordinate vessel survey activities, perform survey on steelwork and produce survey report on recommendations of rectified works.

Marine Project Planning and Management
On completion of the module, students should be able to plan, track and monitor projects using project management software.

Electives (General)
As reflected on pages 300-301.

Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN MECHANICAL ENGINEERING

COURSE SYNOPSIS

On completion of the course, students should be able to

• Set up machines, equipment and systems.
• Provide support in product improvements.
• Conduct quality assurance functions on products and systems.
• Perform fault diagnosis and maintenance of instrumentation and control equipment.
• Perform sub-system and PLC integration.
• Perform support functions in engineering design and development.

JOB OPPORTUNITIES

Higher Nitec in Mechanical Engineering graduates can be employed by mechanical engineering and precision engineering firms and companies that provide engineering services from front-end engineering design, systems development to maintenance of mechanical equipment and instruments. Some of the job titles held by graduates include Engineering Assistant, Mechanical Engineering Technician, Maintenance Supervisor, Quality Assurance Technician and Quality Process Technician. There are excellent opportunities for career advancement to supervisory positions and beyond.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Module Type</th>
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<tr>
<td>Core Modules</td>
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<tr>
<td>Life Skills Modules</td>
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<td>Elective Modules</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>61</strong></td>
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</tbody>
</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Mathematics and Engineering Systems
On completion of the module, students should be able to solve engineering problems involving algebra, indices, graphs, trigonometry and statistics, and to perform electric installations as well as connect pneumatic and hydraulic systems.

CAD and Engineering Design
On completion of the module, students should be able to create 2D drawings of engineering components using a CAD system as well as produce 3D solid models and also to design a mechanical system comprising various machine elements.

Quality Engineering
On completion of the module, students should be able to interpret the Workshop Safety and Health (WSH) regulations, the requirements of ISO 9001 and 14001 under Quality Management System, Lean Six Sigma, and apply fundamental quality tools and techniques for problem solving and quality inspection, and also the use of precision measuring tools with statistical process control capabilities.

Engineering Materials and Mechanics
On completion of the module, students should be able to classify engineering materials, conduct destructive and non-destructive testing and also able to apply the laws and principles of statics and dynamics to design engineering systems.

System Integration and Controls
On completion of the module, students should be able to perform testing, calibration, fault diagnosis and maintenance of instrumentation and control equipment, program PLC system, interface engineering components and sub-systems, as well as install part feeding system and electrical drive system.

Engineering Development and Applications
On completion of the module, students should be able to carry out design and development activities including application of design concepts for a sustainable environment, verify product design, perform rapid prototyping, as well as carry out product design change process and enhancement of product design.

Industry Attachment
On completion of the module, students should be able to acquire and apply a cluster of key technical, social and methodological competencies in their occupation.

Electives (Course Specific)

Conventional Machining
On completion of the module, students should be able to perform machining operations on conventional lathe and milling machines.

Jig and Fixture Design
On completion of the module, students should be able to design and draw a drill jig, turning and milling fixture using CAD software.

Product Prototyping
On completion of the module, students should be able to create simple design of a product using 3-D CAD software and produce a 3-D model of it using basic prototyping devices.

Cobot Automation in Manufacturing
On completion of this module, students should be able to set up the cobot system and program the cobot to perform basic manufacturing operations like pick and place and packaging task.

Electives (General)
As reflected on pages 300-301.

Life Skills Modules
As reflected on page 304.
**HIGHER NITEC IN MECHATRONICS ENGINEERING**

**COURSE SYNOPSIS**

On completion of the course, students should be able to

- Install, maintain and service pneumatic and electro-pneumatic controlled systems.
- Construct and assemble mechanical support.
- Prepare and interpret electrical and mechanical drawings.
- Install and test electrical systems.
- Install and test peripheral devices and microcomputer controlled systems.
- Troubleshoot electronics systems.
- Set up industrial automation systems, modifies PLC program and troubleshoot a simple automated production system at module level.
- Set up automated manufacturing systems, autovision systems and communication networks.
- Set up and test-run industrial robot with written test program.
- Set up precision motion control systems.

**JOB OPPORTUNITIES**

*Higher Nitec* in Mechatronics Engineering graduates are generally employed by engineering firms using cutting edge and high-technology equipment and automated system. Some of the job titles held by graduates include Automation Technician, Engineering Assistant, Industrial Engineering Technician, Mechatronics Technician, Plant Maintenance Technician, Production Supervisor and Associate Engineer. The increasing demand in widely use of robotics and automation technology in healthcare, construction, manufacturing and logistics industries will certainly enhance the career prospect for graduates moving forward.

**CERTIFICATION**

Credits required for certification:

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
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<tr>
<td>Life Skills Modules</td>
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<tr>
<td>Elective Modules</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>63</strong></td>
</tr>
</tbody>
</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.

**COURSE STRUCTURE**

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>CAD and Mechanical Applications</td>
<td>7</td>
</tr>
<tr>
<td>Electrical and Electronics Applications</td>
<td>7</td>
</tr>
<tr>
<td>Pneumatics and Automation</td>
<td>7</td>
</tr>
<tr>
<td>PLC and Motor Control</td>
<td>7</td>
</tr>
<tr>
<td>Cyber Physical Systems</td>
<td>7</td>
</tr>
<tr>
<td>Robotics Systems</td>
<td>7</td>
</tr>
<tr>
<td>Industry Attachment</td>
<td>8</td>
</tr>
<tr>
<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
<td></td>
</tr>
<tr>
<td>Hydraulics</td>
<td>3</td>
</tr>
<tr>
<td>Single Board Micro-controller Applications</td>
<td>2</td>
</tr>
<tr>
<td>Lean Manufacturing</td>
<td>2</td>
</tr>
<tr>
<td>Industrial Internet of Things (IIoT) System Integration</td>
<td>2</td>
</tr>
<tr>
<td><strong>ELECTIVES (INTER-DISCIPLINARY)</strong></td>
<td></td>
</tr>
<tr>
<td>Applied Aviation Science and Mathematics</td>
<td>4</td>
</tr>
<tr>
<td><strong>ELECTIVES (JOINT ITE-INDUSTRY)</strong></td>
<td></td>
</tr>
<tr>
<td>Integration of Vision with Servo Control</td>
<td>2</td>
</tr>
<tr>
<td><strong>ELECTIVES (GENERAL)</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to pages 300-301</td>
<td></td>
</tr>
</tbody>
</table>

**LIFE SKILLS MODULES**

Refer to page 304
MODULE OBJECTIVES

Core Modules

CAD and Mechanical Applications
On completion of the module, students should be able to read, interpret and produce common geometrical and mechanical drawings using Computer-Aided Drafting (CAD) software; use common tools and equipment to fabricate and service simple mechanical elements and assemble aluminium profile structures.

Electrical and Electronics Applications
On completion of the module, students should be able to analyse circuit schematic and board layout; and perform in-circuit measurement. They should also be able to identify faulty components and replace them. Students should also be able to conduct performance test to ensure that the circuit is working as intended.

Pneumatics and Automation
On completion of the module, students should be able to apply electro-mechanical control systems, including common input / output devices, pneumatics and electro-pneumatics systems in industrial automation.

PLC and Motor Control
On completion of the module, students should be able to apply Programmable Logic Controller (PLC) programming to interface and control PLC-controlled applications and to use advanced PLC instructions to program PLC intelligent modules for industrial automation.

Cyber Physical Systems
On completion of the module, students should be able to troubleshoot and maintain sub-systems associated with Cyber Physical System / flexible manufacturing system, such as Conveyor, Automated Guided Vehicle, Automated Storage and Retrieval, Data Identification, Machine Vision, Human Machine Interface, Supervisory Control, Data Acquisition, Internet of Things, Communication Networking, Quality Assurance, Process Control and Maintenance Management.

Robotics Systems
On completion of the module, students should be able to set up, program, operate, troubleshoot and maintain robotic system, and solve engineering problems involving statics, dynamics, kinematics and kinetics. Students are also trained to apply microcontroller programming concepts used in control circuits of microcontroller-based equipment.

Industry Attachment
On completion of the module, students should be able to acquire and apply a cluster of key technical, social and methodological competencies in the occupation.

Electives (Course Specific)

Hydraulics
On completion of the module, students should be able to maintain hydraulic systems in industrial automation.

Single Board Micro-controller Applications
On completion of the module, students should be able to write structured programs to interface with peripheral devices and solve simple problems using single board micro-controller.

Lean Manufacturing
On completion of the module, students should be able to work effectively as a team member to support lean manufacturing and process improvement in the industries and apply PDCA in continuous process improvement to increase productivity.

Industrial Internet of Things (IIoT) System Integration
On completion of the module, students should be able to set up, integrate and program IIoT system with Programmable Logic Controller (PLC), gateway, Ethernet and internet connection from machine level (sensor and actuator in automation application) to data analytic and visualization in the cloud.

Electives (Inter-disciplinary)

Applied Aviation Science and Mathematics
On completion of the module, students should be able to apply fundamentals of mathematics, law of physics and basic aerodynamics principles to solve engineering related problems which are applicable to aircraft flight and ground operations.

Electives (Joint ITE-Industry)

Integration of Vision with Servo Control
On completion of the module, students should be able to implement a vision inspection system, perform servo motor control and interface vision system with servo motor control for inspection process.

Electives (General)
As reflected on pages 300-301.

Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN OFFSHORE & MARINE ENGINEERING DESIGN

COURSE SYNOPSIS

On completion of the course, students should be able to prepare working drawings and assist in the offshore and marine engineering design with application software for the following areas:

- Offshore and marine accommodation
- Offshore and marine life savings and fire-fighting appliances
- Offshore and marine structure
- Offshore and marine piping system including piping for fuel oil, lubrication, engine exhaust, hydraulics, pneumatics and water supply
- Offshore and marine electrical system and controls
- Offshore and marine heating, ventilation and air-conditioning (HVAC) systems

JOB OPPORTUNITIES

Higher Nitec in Offshore & Marine Engineering Design graduates are employed by shipyards and other supporting companies which design and provide services on the repair, fabrication, refurbishment of all types of vessels, offshore structures in the marine and offshore industry. Some of the job titles held by graduates include Offshore & Marine Engineering CADD Specialist, Offshore & Marine Engineering Assistant Designer and Offshore & Marine Structure Draughtsman. There are excellent opportunities for career advancement to supervisory positions and beyond.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Component</th>
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MODULE OBJECTIVES

Core Modules

Engineering Graphics
On completion of the module, students should be able to produce technical sketches, engineering detailed drawings, 3D solid model, and assembly drawings in accordance with ISO standards.

Offshore and Marine Structure Design
On completion of the module, students should be able to perform offshore and marine initial design and prepare general arrangement and structural drawings in accordance with standards and appropriate classification society requirements.

Offshore and Marine Electrical System Design
On completion of the module, students should be able to design electrical system of a ship, including control and communication system, and prepare the drawings in accordance with standards and appropriate classification society requirements.

Offshore and Marine Piping System Design
On completion of the module, students should be able to design mechanical piping, marine system, life safety and fire fighting appliance of a ship, and prepare the drawings in accordance to standards, appropriate classification society, Safety of Life at Sea (SOLAS) and International Maritime Organization (IMO) requirements.

Offshore and Marine HVAC System Design
On completion of the module, students should be able to estimate the cooling load of a ship, design air-conditioning and mechanical ventilation ducting, heating system and prepare working drawings for ducting layouts and related pipe work in accordance with ISO standards and appropriate classification society requirements.

Marine Structure and System Modelling
On completion of the module, students should be able to use the latest 3D modelling software to support the design of both conventional offshore platforms and other marine vessels in accordance with industry requirements.

Industry Attachment
Students will undertake a 6-month industry attachment at the shipyards and design consultancy companies in the marine sector to complement and reinforce the skills and knowledge acquired at ITE to develop other competencies in other specialised areas.

Electives (Course Specific)

Solid Modelling
On completion of the module, students would be able to appreciate the benefits of parametric modelling and be able to use the 3D modelling software to perform mechanical design and prepare working and presentation drawings.

Engineering Project Management
On completion of the module, students should be able to apply the tools and techniques that enable the project team to organise and manage their project work to meet requirements and challenges.

Electives (Inter-disciplinary)

Ship and Offshore Survey
On completion of the module, students should be able to co-ordinate vessel survey activities, perform survey on steelwork and produce survey report on recommendations of rectified works.

Basic Naval Architecture
On completion of the module, students should be able to produce lines plans drawings from offset tables, perform ship form and stability calculations.

Electives (General)
As reflected on pages 300-301.

Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN PRECISION ENGINEERING

COURSE SYNOPSIS

On completion of the course, students should be able to

- Prepare job requirements.
- Create, interpret and edit CNC part program.
- Perform tooling setup.
- Perform CNC machining to produce precise parts.
- Troubleshoot machining faults.

JOB OPPORTUNITIES

Higher Nitec in Precision Engineering graduates are employed as technical specialist by a wide range of niche manufacturing industries, in particular the Aerospace, Semiconductor, Oil and Gas, Medical Technology, as well as Precision Modules and Components, and Machinery and Systems sectors. There are excellent opportunities for career advancement to supervisory positions and beyond.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Core Modules</th>
<th>21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Skills Modules</td>
<td>3</td>
</tr>
<tr>
<td>Elective Modules</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
</tr>
</tbody>
</table>

COURSE STRUCTURE

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Advanced Materials and Metrology</td>
<td>6</td>
</tr>
<tr>
<td>Advanced Machining and Tool Management</td>
<td>7</td>
</tr>
<tr>
<td>Industry Attachment</td>
<td>8</td>
</tr>
<tr>
<td><strong>ELECTIVES (INTER-DISCIPLINARY)</strong></td>
<td></td>
</tr>
<tr>
<td>Product Prototyping</td>
<td>2</td>
</tr>
<tr>
<td><strong>ELECTIVES (GENERAL)</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to pages 300-301</td>
<td></td>
</tr>
<tr>
<td><strong>LIFE SKILLS MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to page 304</td>
<td></td>
</tr>
</tbody>
</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Advanced Materials and Metrology
On completion of the module, students should be able to describe the properties and applications of engineering plastics, metals and non-metals, alloys, and exotic materials, and applications of various heat treatment and surface treatment processes. They should also be able to interpret geometrical dimensioning & tolerances, perform measurement of parts with geometrical form and feature using gauges and complex measuring instruments including CMM, and generate quality control reports.

Advanced Machining and Tool Management
On completion of the module, students should be able to interpret blueprint drawings, create CNC part programs using CAM system, perform tooling setup, perform process planning, optimise CNC machining processes and machining parameters involving tool management, produce precise parts to specifications using CNC machines, and troubleshoot machining faults. They should also be able to select appropriate cutting tools for machining different materials, and perform inspection on machined parts using appropriate measuring tools.

Industry Attachment
On completion of the module, students should be able to acquire and apply a cluster of key technical, social and methodological competencies in their occupation.

Electives (Inter-disciplinary)

Product Prototyping
On completion of the module, students should be able to create simple design of a product using 3D CAD software and produce a 3D model of it using basic prototyping devices.

Electives (General)
As reflected on pages 300-301.

Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN RAPID TRANSIT ENGINEERING

COURSE SYNOPSIS

On completion of the course, students should be able to

- Maintain rapid transit communication systems.
- Maintain rapid transit signalling systems.
- Maintain rapid transit integrated supervisory control system.

JOB OPPORTUNITIES

Higher Nitec in Rapid Transit Engineering graduates, with their breadth and depth of skills and knowledge in a wide range of rapid transit technologies and systems, would be able to find attractive employment opportunities with mass rapid transit operators (SMRT, SBS Transit), Land Transport Authority, Government planning agencies as well as companies dealing in high tech systems and equipment for the rail industry. Some of the job titles would include Rapid Transit Technical Officer in the areas of Trains, Rolling Stock, Permanent Way, Electrical Systems, Communications, Signalling and Supervisory Control.

There are excellent opportunities for career advancement to supervisory and senior engineering positions and beyond.

CERTIFICATION

Credits required for certification:

- Core Modules : 53
- Life Skills Modules : 10
- Elective Modules : 4
- Total : 67

COURSE STRUCTURE

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
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<tr>
<td>CORE MODULES</td>
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<tr>
<td>Rapid Transit Rails &amp; Engineering Fundamentals</td>
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</tr>
<tr>
<td>Rapid Transit Electrical System</td>
<td>7</td>
</tr>
<tr>
<td>Rapid Transit Electronic Systems</td>
<td>7</td>
</tr>
<tr>
<td>Rapid Transit Operations and Rolling Stock</td>
<td>7</td>
</tr>
<tr>
<td>Rapid Transit Signalling Systems</td>
<td>7</td>
</tr>
<tr>
<td>Rapid Transit Communications Systems</td>
<td>7</td>
</tr>
<tr>
<td>Rapid Transit Integrated Supervisory Control System</td>
<td>7</td>
</tr>
<tr>
<td>Industry Attachment</td>
<td>4</td>
</tr>
</tbody>
</table>

ELECTIVES (GENERAL)

Refer to pages 300-301

LIFE SKILLS MODULES

Refer to page 304

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Rapid Transit Rails and Engineering Fundamentals
On completion of the module, students should be able to perform the maintenance of rail tracks and rail engineering components in accordance with railway industry standards and workplace safety regulations.

Rapid Transit Electrical System
On completion of the module, students should be able to explain the principles, operations, applications and to perform maintenance of electrical circuits, motor control system and rapid transit electrical power distribution system in accordance with the relevant codes of practice and railway industry standards and regulations.

Rapid Transit Electronic Systems
On completion of the module, students should be able to explain the principles, operation, applications and to perform maintenance of electronics components, logic circuits, electro-mechanical devices, operational amplifiers, power rectification, oscillators, pulse width modulation circuits, rotary encoders, sensors and transducers in accordance with the railway industry standards and regulations.

Rapid Transit Operations and Rolling Stock
On completion of the module, students should be able to explain the operation of the rail network in Singapore and perform maintenance of rolling stock equipment in accordance with the railway industry standards and regulations.

Rapid Transit Signalling Systems
On completion of the module, students should be able to explain the principles, operation and to perform maintenance of rapid transit signaling devices, circuits and systems in accordance with railway industry standards and regulations.

Rapid Transit Communications Systems
On completion of the module, students should be able to explain the principles, operation and also perform and/or supervise the maintenance of rapid transit communication devices, circuits and systems in accordance with railway industry standards and regulations.

Rapid Transit Integrated Supervisory Control System
On completion of the module, students should be able to explain the principles, operation and perform and/or supervise the inspection and maintenance of rapid transit supervisory control and station equipment in accordance with railway industry standards and regulations.

Industry Attachment
On completion of the module, students should be able to apply the skills and knowledge acquired to take on a range of job scope at the company.

Electives (General)
As reflected on pages 300-301.

Life Skills Modules
As reflected on page 304.
On completion of the course, students should be able to

- Set up robotic systems.
- Maintain robotic control systems.
- Set up and maintain mobile robot.
- Set up smart sensor system.
- Design and produce end effectors.
- Program human robot interface.
- Set up microcontroller system.

Higher Nitec in Robotics & Smart Systems graduates are generally employed in robotics industries requiring Robotics Technicians to plan and manage projects ranging from specifying project requirements and brainstorming to operating and maintaining fully-functional robots.

Credits required for certification:

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Life Skills Modules</td>
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<td>Elective Modules</td>
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</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>63</strong></td>
</tr>
</tbody>
</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Robotics and Applications
On completion of the module, students should be able to install, program, operate, troubleshoot industrial and collaborative robotic system.

Electrical Applications
On completion of the module, students should be able to set up, design and construct electrical control system and electronic circuits. They should also be able to test and troubleshoot faulty circuits.

Mobile Robotics and Control
On completion of the module, students should be able to apply knowledge of localisation, mapping and obstacles avoidance to perform navigation on mobile robotics platform.

Smart Sensors and Integration
On completion of the module, students should be able to install, integrate and troubleshoot smart sensor system, and apply the system into Industry 4.0 and Internet of Things (IoT).

End Effectors
On completion of the module, students should be able to design end effector using 3D solid modelling, produce end effector using 3D printing, and test end effector based on its application.

Smart Systems and Programming
On completion of the module, students should be able to install, configure and test robot vision system and acquire images through network protocol for analysis; and apply microcontroller programming concept to control microcontroller-based devices and equipment.

Industry Attachment
On completion of the module, students should be able to acquire and apply a cluster of key technical, social and methodological competencies in the occupation.

Electives (Course Specific)

Hydraulics
On completion of the elective, students should be able to install hydraulic systems in industrial automation.

Single Board Micro-controller Applications
On completion of the elective, students should be able to write structured programs to interface with peripheral devices and solve simple problems using single board micro-controller.

Electives (Inter-disciplinary)

Internet and Network Security
On completion of the module, students should be able to identify network and internet security risks and to advise users on countermeasures or preventive actions. They should also be able to participate in a Security Life Cycle project discussion.

Essentials of Cyber Defence
On completion of the module, students should be able to carry out a comprehensive security assessment of a typical SME IT environment, testing for OS vulnerabilities, weaknesses in network & web services. Students will learn the Computer Misuse & Cybersecurity Act (2013) Chapter 50A, how to prepare for a penetration test, reconnaissance & enumeration, and vulnerability assessment. Students will also be taught the necessary countermeasures to mitigate risks of exploitation.

Electives (Joint ITE-Industry)

Robot Palletizing Operations and Programming
On completion of the module, students should be able to operate the palletizing robot system, including editing and modifying programs for different palletizing operations.

Electives (General)
As reflected on pages 300-301.

Life Skills Modules
As reflected on page 304.
NITEC IN AEROSPACE AVIONICS

COURSE SYNOPSIS

On completion of the course, students should be able to

- Perform maintenance of electrical wiring looms and related systems.
- Perform maintenance of electrical and electronics systems.
- Assist to perform operational tests on the instrumentation system.
- Assist to perform operational tests on the radio system.
- Perform general aircraft general maintenance.

JOB OPPORTUNITIES

Nitec in Aerospace Avionics graduates are employed by aerospace companies, which maintain and repair aircraft instrumentation, radio system and avionic system. Some of the job titles held by graduates include Aircraft Technician (Avionics Trade), Aircraft Maintenance Technician and Avionics Technician. There are excellent opportunities for career advancement to supervisory positions and beyond.

CERTIFICATION

Credits required for certification:

| Core Modules          | 57 |
| Life Skills Modules   | 9  |
| Elective Modules      | 6  |
| **Total**             | **72** |

COURSE STRUCTURE

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Aircraft General Maintenance</td>
<td>9</td>
</tr>
<tr>
<td>Human Factors and Air Legislation</td>
<td>6</td>
</tr>
<tr>
<td>Aircraft Electrical and Electronics Systems</td>
<td>8</td>
</tr>
<tr>
<td>Aircraft Instrumentation System</td>
<td>8</td>
</tr>
<tr>
<td>Aircraft Materials and Structures</td>
<td>8</td>
</tr>
<tr>
<td>Aircraft Communication and Navigation Systems</td>
<td>10</td>
</tr>
<tr>
<td>Aircraft Maintenance Practice</td>
<td>8</td>
</tr>
<tr>
<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
<td></td>
</tr>
<tr>
<td>Unmanned Aircraft System</td>
<td>2</td>
</tr>
<tr>
<td><strong>ELECTIVES (INTER-DISCIPLINARY)</strong></td>
<td></td>
</tr>
<tr>
<td>TIG Welding</td>
<td>2</td>
</tr>
<tr>
<td>Non-Destructive Testing</td>
<td>2</td>
</tr>
<tr>
<td>Basic Principle of Helicopter</td>
<td>2</td>
</tr>
<tr>
<td>Composite Structure Repairs</td>
<td>2</td>
</tr>
<tr>
<td><strong>ELECTIVES (GENERAL)</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to pages 302-304</td>
<td></td>
</tr>
<tr>
<td><strong>LIFE SKILLS MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to page 304</td>
<td></td>
</tr>
</tbody>
</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Aircraft General Maintenance
On completion of the module, students should be able to perform aircraft general maintenance such as fastening, wire-locking, sealant application, general corrosion control and plumbing; interpret aircraft blueprint drawings, aircraft manuals and catalogues.

Human Factors and Air Legislation
On completion of the module, students should be able to carry out Workplace, Safety and Health concepts in aircraft maintenance works and to prevent and minimise human-factor related errors in aircraft maintenance, update maintenance records and documentation and to apply the regulatory framework of local air transport operations and governing system adopted by Civil Aviation Authority of Singapore.

Aircraft Electrical and Electronics Systems
On completion of the module, students should be able service, maintain and troubleshoot different types of aircraft electrical system and devices.

Aircraft Instrumentation System
On completion of the module, students should be able service, maintain and troubleshoot aircraft instrumentation system.

Aircraft Materials and Structures
On completion of the module, students should be able to repair minor surface aircraft structure defects and apply basic Aerodynamic and Theory of Flight.

Aircraft Communication and Navigation Systems
On completion of the module, students should be able to service, maintain and troubleshoot aircraft communication and navigation systems.

Aircraft Maintenance Practice
Students will undergo a 6-month On-the-Job Training (OJT) course with aerospace industry to reinforce the skills and knowledge acquired at the training institute and to develop competencies in other specialised areas.

Electives (Course Specific)

Unmanned Aircraft System
On completion of the module, students should be able to maintain an unmanned aircraft system including associated ground control station and sensors.

Electives (Inter-disciplinary)

TIG Welding
On completion of the module, students should be able to join sheet metal and rebuild metal using TIG welding process.

Non-Destructive Testing
On completion of the module, students should be able to understand the working principles of non-destructive testing (NDT) methods used for detecting defects in the aircraft components/structures.

Basic Principle of Helicopter
On completion of the module, students should be able to understand the basic principles of aerodynamics in helicopters and the various types of rotors used to achieve lift. They should also be able to identify the various parts of the helicopter and mechanism and controls used in changing of blade pitch.

Composite Structure Repairs
On completion of the module, students should be able to perform cold and hot bonding on honeycomb structures using fibreglass wet and epoxy resin material (cold bonding) and wet layup pre-preg, metal skin materials and foam core material. Students will also be trained on inspection of damaged structures and post bonding inspection and testing.

Electives (General)
As reflected on pages 302-304.

Life Skills Modules
As reflected on page 304.
NITEC IN AEROSPACE MACHINING TECHNOLOGY

COURSE SYNOPSIS

On completion of the course, students should be able to

• Generate CNC part-program using CAD/CAM system.
• Set up multi-axis CNC machining centres.
• Operate and monitor precision machining operations.
• Manufacture aerospace components.
• Perform quality checks.

JOB OPPORTUNITIES

Nitec in Aerospace Machining Technology graduates are employed as manufacturing specialist by high value manufacturing industries, in particular the Aerospace, Oil and Gas, Precision Modules and Components, Medical Technology, Transport Engineering, and Machinery and Systems sectors. There are excellent opportunities for career advancement to supervisory positions and beyond.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
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</tr>
<tr>
<td>Life Skills Modules</td>
<td>9</td>
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<td>Elective Modules</td>
<td>4</td>
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<td>Total</td>
<td>57</td>
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</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.

COURSE STRUCTURE

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Engineering Drawing &amp; Inspection Techniques</td>
<td>6</td>
</tr>
<tr>
<td>Engineering Process (Turning)</td>
<td>6</td>
</tr>
<tr>
<td>Engineering Process (Milling)</td>
<td>6</td>
</tr>
<tr>
<td>3D CAD/CAM Applications</td>
<td>6</td>
</tr>
<tr>
<td>Aerospace Machining</td>
<td>6</td>
</tr>
<tr>
<td>Multi-Axis Programming &amp; Machining</td>
<td>6</td>
</tr>
<tr>
<td>Industry Attachment</td>
<td>8</td>
</tr>
<tr>
<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
<td></td>
</tr>
<tr>
<td>Assembly Skills</td>
<td>2</td>
</tr>
<tr>
<td>Co-ordinate Measuring Techniques</td>
<td>2</td>
</tr>
<tr>
<td>Grinding</td>
<td>2</td>
</tr>
<tr>
<td>CNC EDM (Die-sink &amp; Wire-cut)</td>
<td>2</td>
</tr>
<tr>
<td><strong>ELECTIVES (INTER-DISCIPLINARY)</strong></td>
<td></td>
</tr>
<tr>
<td>Design Conceptualization &amp; Rapid Prototyping</td>
<td>2</td>
</tr>
<tr>
<td><strong>ELECTIVES (GENERAL)</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to pages 302-304</td>
<td></td>
</tr>
<tr>
<td><strong>LIFE SKILLS MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to page 304</td>
<td></td>
</tr>
</tbody>
</table>
MODULE OBJECTIVES

Core Modules

Engineering Drawing & Inspection Techniques
On completion of the module, students should be able to interpret technical drawings and perform dimensional inspections for the machined components in accordance with ISO standards.

Engineering Process (Turning)
On completion of the module, students should be able to set up and operate centre lathes and CNC lathes to produce components in accordance with given specifications.

Engineering Process (Milling)
On completion of the module, students should be able to set up and operate conventional milling machines and CNC milling machines to produce components in accordance with given specifications.

3D CAD/CAM Applications
On completion of the module, students should be able to interpret engineering drawings, create 3D CAD models and, generate and verify CNC part programs using a CAD/CAM system for CNC lathes and CNC milling machines.

Aerospace Machining
On completion of the module, students should able to develop part program for aerospace parts, set up and operate CNC high speed machining centres to manufacture engine and structural aerospace parts and components.

Multi-Axis Programming & Machining
On completion of the module, students should be able to develop multi-axis part program, set up and operate 5-axis CNC universal machining centres to manufacture components in a single set up for the aerospace and oil & gas industries.

Industry Attachment
On completion of the module, students should be able to acquire and apply a cluster of key technical, social and methodological competencies in their occupation.

Electives (Course Specific)

Assembly Skills
On completion of the module, students should be able to select and use the correct hand tools for assembly and dismantle of mechanical components.

Electives (Inter-disciplinary)

Design Conceptualization & Rapid Prototyping
On completion of the module, students should be able to create a 3D solid model using CAD software and to operate the rapid prototyping printing machine to generate the 3D model.

Electives (General)
As reflected on pages 302-304.

Life Skills Modules
As reflected on page 304.

Co-ordinate Measuring Techniques
On completion of the module, students should be able to understand the fundamentals of co-ordinate measuring techniques. They will be able to operate and apply the application to perform mathematical alignment of various simple geometrical components and obtain the measured results as required.

Grinding
On completion of the module, students should be able to interpret technical drawings, grind components safely using a surface grinder and cylindrical grinder and supporting tools in accordance with given specific.

CNC EDM (Die-sink & Wire-cut)
On completion of the module, students should be able to interpret technical drawings, produce components safely using a CNC EDM Die-sink machine and CNC EDM Wire-cut machine and supporting tools in accordance with given specific.

ELECTIVES (General)
As reflected on pages 302-304.

Life Skills Modules
As reflected on page 304.
NITEC IN AEROSPACE TECHNOLOGY

COURSE SYNOPSIS

This is a Singapore Airworthiness Requirements Part-147 (SAR-147) course currently approved by the Civil Aviation Authority of Singapore (CAAS).

On completion of the course, students should be able to

- Maintain aircraft hydraulic system.
- Maintain aircraft and engine pneumatic systems.
- Maintain aircraft and engine electrical systems.
- Maintain aircraft flight control system.
- Maintain aircraft and engine fuel systems.
- Maintain aircraft environmental control system.
- Maintain aircraft landing gear system.
- Perform maintenance and periodic inspection on aircraft and engines.
- Repair aircraft damaged skin and structural members.
- Repair non-metallic material such as composites.
- Assist in aircraft towing.
- Operate aircraft support equipment.
- Assist to prepare aircraft and engine for engine ground runs.

JOB OPPORTUNITIES

Nitec in Aerospace Technology graduates are employed by aerospace companies, which involved airframe maintenance, engine maintenance and structural system repair. Some of the job titles held by graduates include Aircraft Technician, Aircraft Engine Technician, Aircraft Structural Repair Technician and Aircraft Sheet Metal Technician. There are excellent opportunities for career advancement to supervisory positions and beyond.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Modules</th>
<th>Credits</th>
</tr>
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<tbody>
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Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.

COURSE STRUCTURE

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<tr>
<th>Module Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
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<tr>
<td>Aircraft General Maintenance</td>
<td>9</td>
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<tr>
<td>Aircraft Electrical System Maintenance</td>
<td>5</td>
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<td>Airframe Maintenance</td>
<td>11</td>
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<tr>
<td>Human Factors and Air Legislation</td>
<td>6</td>
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<tr>
<td>Aircraft System Maintenance</td>
<td>10</td>
</tr>
<tr>
<td>Aircraft Propulsion Maintenance</td>
<td>7</td>
</tr>
<tr>
<td>Industry Attachment</td>
<td>8</td>
</tr>
<tr>
<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
<td></td>
</tr>
<tr>
<td>TIG Welding</td>
<td>2</td>
</tr>
<tr>
<td>Non-Destructive Testing</td>
<td>2</td>
</tr>
<tr>
<td>Basic Principle of Helicopter</td>
<td>2</td>
</tr>
<tr>
<td>Composite Structure Repairs</td>
<td>2</td>
</tr>
<tr>
<td>Applied Aviation Science and Mathematics</td>
<td>4</td>
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<tr>
<td><strong>ELECTIVES (INTER-DISCIPLINARY)</strong></td>
<td></td>
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<tr>
<td>Unmanned Aircraft System</td>
<td>2</td>
</tr>
<tr>
<td><strong>ELECTIVES (GENERAL)</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to pages 302-304</td>
<td></td>
</tr>
<tr>
<td><strong>LIFE SKILLS MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to page 304</td>
<td></td>
</tr>
</tbody>
</table>
MODULE OBJECTIVES

Core Modules

Aircraft General Maintenance
On completion of the module, students should be able to perform aircraft general maintenance such as fastening, wirelocking, sealant application, general corrosion control and plumbing, interpret aircraft blueprint drawings, aircraft manuals and catalogues.

Aircraft Electrical System Maintenance
On completion of the module, students should be able to carry out electrical crimping, splicing and terminating electrical wires, use and calibrate measuring and testing instruments, handle Electrostatic Discharge Sensitive (EDS) devices, perform soldering of electrical and electronic components and inspect fibre-optic cables.

Airframe Maintenance
On completion of the module, students should be able to repair minor surface defects of aircraft sheet metal, corroded sheet metal, aircraft structural materials, composite structure, parts components and fibre-glass materials. They are also trained to perform cold and hot bonding, basic repair of cabin interiors, and riveting and blasting on sheet metal.

Human Factors and Air Legislation
On completion of the module, students should be able to carry out Workplace Safety and Health practices during aircraft maintenance works and prevent and minimise human-factor related errors in aircraft maintenance. They are also trained to update maintenance records and documentation, and to apply the regulatory framework of local air transport operations and governing system from Civil Aviation Authority of Singapore.

Aircraft System Maintenance
On completion of the module, students should be able to perform general maintenance and lubrication on aircraft components, prepare aircraft for towing and jacking, inspect structural defects and damage, and maintain aircraft pneumatics, hydraulics, flight controls, fuel, landing gear, environment control systems, emergency equipment and fire protection system.

Aircraft Propulsion Maintenance
On completion of the module, students should be able to assist in rigging and trimming of engine in test-cell environment, carry out of periodic inspections and maintenance on aircraft engines and propellers, and prepare aircraft for engine test run.

Industry Attachment
Students will undergo 6-month Industry Attachment programme in the aerospace industry to reinforce the skills and knowledge acquired at the training institute and develop competencies in other specialised areas.

Electives (Course Specific)

TIG Welding
On completion of the module, students should be able to join sheet metal and rebuild metal using TIG welding process.

Non-Destructive Testing
On completion of the module, students should be able to apply the working principles of non-destructive testing (NDT) methods used for detecting defects in the aircraft components / structures.

Basic Principle of Helicopter
On completion of the module, students should be able to interpret the basic principles of aerodynamics in helicopters and the various types of rotors used to achieve lift. They should also be able to identify the various parts of the helicopter and mechanism and controls used in changing of blade pitch.

Composite Structure Repairs
On completion of the module, students should be able to perform cold and hot bonding on honeycomb structures using fibreglass wet and epoxy resin material (cold bonding) and wet lay-up pre-preg, metal kin materials and foam core material. Students will also be trained on inspection of damaged structures and post bonding inspection and testing.

Applied Aviation Science and Mathematics
On completion of the module, students should be able to apply fundamentals of mathematics, law of physics and basic aerodynamics principles to solve engineering related problems which are applicable to aircraft flight and ground operations.

Electives (Inter-disciplinary)

Unmanned Aircraft System
On completion of the module, students should be able to maintain an unmanned aircraft system including associated ground control station and sensors.

Electives (General)
As reflected on pages 302-304.
Life Skills Modules
As reflected on page 304.
NITEC IN AUTOMOTIVE TECHNOLOGY

COURSE SYNOPSIS

On completion of the course, students should be able to maintain, service, repair and troubleshoot the systems in passenger and commercial vehicles such as:

- Maintain engine mechanical and management systems
- Service emission control systems
- Maintain air intake system
- Service suspension and steering systems
- Maintain drivetrain system
- Repair electrical and electronic systems
- Service air-conditioning system
- Maintain supplemental restraint system

JOB OPPORTUNITIES

Nitec in Automotive Technology graduates are employed by fleet maintenance workshops, public transport companies, distributors of passenger and commercial vehicles, service garages, franchised motor dealers, vehicle inspection centres, service garages and government agencies. Some of the job titles held by graduates include Truck or Bus Service Technician, Diesel Engine Service Technician, Motor Vehicle Service Technician, Service Advisor and Vehicle Inspector. There are excellent opportunities for career advancement to supervisory positions and beyond.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Core Modules</th>
<th>46</th>
</tr>
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<tbody>
<tr>
<td>Life Skills Modules</td>
<td>9</td>
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<tr>
<td>Elective Modules</td>
<td>6</td>
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<tr>
<td><strong>Total</strong></td>
<td>61</td>
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</tbody>
</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.

COURSE STRUCTURE

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Automotive Principles &amp; Systems</td>
<td>4</td>
</tr>
<tr>
<td>Basic Chassis &amp; Drivetrain Technology</td>
<td>7</td>
</tr>
<tr>
<td>Basic Engine Technology</td>
<td>4</td>
</tr>
<tr>
<td>Autotronics</td>
<td>7</td>
</tr>
<tr>
<td>Engine Technology &amp; Powertrain Management</td>
<td>8</td>
</tr>
<tr>
<td>Chassis &amp; Drivetrain Technology</td>
<td>8</td>
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<tr>
<td>Industry Attachment</td>
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<tr>
<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
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</tr>
<tr>
<td>Basic Electro-Pneumatics and Hydraulics</td>
<td>2</td>
</tr>
<tr>
<td>Workshop Supervision and Customer Reception</td>
<td>2</td>
</tr>
<tr>
<td>Vehicle and Motorcycle Inspection</td>
<td>2</td>
</tr>
<tr>
<td>Basic Motorcycle Service and Maintenance</td>
<td>2</td>
</tr>
<tr>
<td><strong>ELECTIVES (INTER-DISCIPLINARY)</strong></td>
<td></td>
</tr>
<tr>
<td>Project Management</td>
<td>2</td>
</tr>
<tr>
<td>High Voltage Safety with Hybrid &amp; Electric Vehicles</td>
<td>2</td>
</tr>
<tr>
<td><strong>ELECTIVES (GENERAL)</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to pages 302-304</td>
<td></td>
</tr>
<tr>
<td><strong>LIFE SKILLS MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to page 304</td>
<td></td>
</tr>
</tbody>
</table>
MODULE OBJECTIVES

Core Modules

Automotive Principles & Systems
On completion of the module, students should be able to observe workplace health and safety, extract technical information, select and use lifting equipment and hand tools to disassemble and reassemble automotive systems and components, check automotive components dimensions and basic electrical readings as well as the proper disposal of automotive wastes.

Basic Chassis & Drivetrain Technology
On completion of the module, students should be able to service and replace automotive drivetrain and chassis components like manual transmission clutch and brakes on a vehicle.

Basic Engine Technology
On completion of the module, students should be able to service engine system components of spark ignition and compression ignition engines on a vehicle.

Autotronics
On completion of the module, students should be able to interpret, measure, diagnose and rectify faults in vehicle electrical systems, electronic circuits and air-conditioning systems on a vehicle.

Engine Technology & Powertrain Management
On completion of the module, students should be able to conduct system fault finding with the use of diagnostic tools & equipment and rectify the system faults in engine electrical, fuel injection pump, lubrication and cooling, engine mechanical, engine management, emission control, forced air induction system on a vehicle.

Chassis & Drivetrain Technology
On completion of the module, students should be able to troubleshoot and rectify faults in automotive chassis and drivetrain systems components.

Industry Attachment
On completion of the module, students should be able to apply the skills and knowledge acquired to take on a range of job scope at the company.

Electives (Course Specific)

Basic Electro-Pneumatics and Hydraulics
On completion of the module, students should be able to assemble, perform fault diagnosis and rectification of basic electro-pneumatics and electro-hydraulic circuits used on heavy vehicles.

Workshop Supervision and Customer Reception
On completion of the module, students should be able to supervise servicing jobs and communicate to customers using good customer service skills.

Vehicle and Motorcycle Inspection
On completion of the module, students should be able to perform roadworthiness inspection and tests on vehicles and motorcycles.

Basic Motorcycle Service and Maintenance
On completion of the module, students should be able to perform basic service and replacement of components in the lubrication, brake and ignition system of a motorcycle.

Electives (Inter-disciplinary)

Project Management
On completion of the module, students should be able to use a software application for planning and managing projects.

High Voltage Safety with Hybrid & Electric Vehicles
On completion of the module, students should be able to illustrate the different battery configurations and performance requirements of high voltage vehicles. They will acquire safe working procedures and troubleshooting skills using appropriate diagnostic equipment and tools.

Electives (General)
As reflected on pages 302-304.

Life Skills Modules
As reflected on page 304.
**COURSE SYNOPSIS**

On completion of the course, students should be able to

- Service and diagnose faulty components for air-conditioning and mechanical ventilation equipment.
- Conduct routine tests and servicing on fire detection and fire protection system.
- Service, diagnose and rectify faults in electrical system and emergency system.
- Service and diagnose faulty mechanical equipment.
- Maintain building works.
- Maintain water supply and sanitary pipework and fixtures.
- Set up audio-video and public address systems.
- Conduct routine checks on security systems (CCTV).

**JOB OPPORTUNITIES**

*Nitec in Built Environment (Mechanical & Electrical Services)* graduates are employed by companies providing building management and maintenance services. Some of the job titles held by graduates include Building Maintenance Technician, Facilities Technician and Air-Conditioning Technician. There are excellent opportunities for career advancement to supervisory positions and beyond.

**CERTIFICATION**

Credits required for certification:

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
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<tr>
<td>Specialisation Modules</td>
<td>22</td>
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<tr>
<td>Life Skills Modules</td>
<td>10</td>
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<tr>
<td>Elective Modules</td>
<td>4</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>60</strong></td>
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</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Electrical Services
On completion of the module, students should be able to interpret electrical circuit diagrams; install conduits and trunkings; replace light fittings and accessories; rectify faults in electrical circuits; and conduct insulation resistance and continuity tests.

Mechanical Services
On completion of the module, students should be able to carry out basic repairs on mechanical parts, service centrifugal pump, motor-drive assembly, air-cooled petrol and liquid-cooled diesel-driven portable generator, as well as replace faulty component of drive mechanism and door fittings.

Residential Air-Conditioning Services
On completion of the module, students should be able to install refrigeration piping system, install unitary and split-type air conditioners, replace faulty fan coil and condensing unit, and carry out preventive maintenance of a residential air-conditioning system, water cooler and dehumidifier.

Piping and Plumbing Services
On completion of the module, students should be able to repair water supply and sanitary piping system, replace piping fittings, sanitary fixtures, rectify faulty water heaters, clear pipe and drain chokes, and inspect water pump and control systems.

Specialisation Modules

Health, Safety and Environment
On completion of the module, students should be able to comprehend HSE regulations and framework, identify environmental and safety hazards in workplace, implement appropriate risk controls, and apply safety requirements for working at height.

Sustainable Air-Conditioning and Refrigeration Technology
On completion of the module, students should be able to interpret ducting and piping layout drawings of an air-conditioning system, carry out balancing of airflow in an air distribution system, perform maintenance of chilled and condenser water piping system, air distribution system and air-conditioning equipment as well as functionality checks on Building Management System. Students will also learn the various sustainable air-conditioning and refrigeration technologies adopted in modern green buildings.

Fire Detection and Protection Systems
On completion of the module, students should be able to interpret building mechanical system plan, inspect fire alarm and detection system, service fire-fighting equipment such as hose reel system, riser system, private hydrant system and automated system, and perform inspection of emergency voice communication system, fire extinguishers and fire suppression system.

Industry Attachment
Students will be attached to relevant companies to reinforce the skills and knowledge acquired at ITE as well as gain professional and working experience.

Electives (Course Specific)

Energy Audit
On completion of the module, students should be able to conduct on-site basic energy audit using the appropriate measuring instruments and tools; and recommend corrective measures for energy savings.

Electives (Inter-disciplinary)

Building Information Modelling (BIM) for Facilities Management
On completion of the module, students should be able to interpret two-dimensional architectural layout drawings, generate three-dimensional modelling, and retrieve relevant information on building services systems using BIM software. In addition, students will also learn the effective modelling and visualisation techniques for presenting project designs.

Electives (Joint ITE-Industry)

Swimming Pool Maintenance
On completion of the module, students should be able to carry out servicing, maintenance, repairs on swimming pool filtration system, and its equipment including carrying out water quality checks.

Pest Management
On completion of the module, students should be able to carry out pest inspection work, prepare worksite for pest management, use pesticides and pest management equipment, prepares pesticides and supervise pest control operations performed by workers hired by the company. Upon completion of the course, students will be qualified to be licensed as technicians under the Control of Vectors and Pesticides Act 1998.
Electives (General)
As reflected on pages 302-304.

Life Skills Modules
As reflected on page 304.
NITEC IN BUILT ENVIRONMENT (VERTICAL TRANSPORTATION)

COURSE SYNOPSIS

This course provides students with the technical skills and knowledge to maintain, troubleshoot, repair and inspect traction lifts and escalators in residential, institutional and commercial buildings in accordance with codes of practice and statutory requirements and engineering specifications.

On completion of the course, students should be able to

- Maintain and replace lift and escalator equipment.
- Perform lift and escalator routine and periodic maintenance works.
- Diagnose and troubleshoot defects and faults in lift and escalator installations, including performing lift rescue operations when required.
- Repair/replace faulty components and recommission lifts and escalators.
- Assist lift engineer in the installation, testing, adjustment and commissioning of lift and escalator systems and equipment.

JOB OPPORTUNITIES

Nitec in Built Environment (Vertical Transportation) graduates can be employed by companies that market, install and/or provide maintenance services for lifts and escalators. Some of the job titles that are held by graduates include Lift & Escalator Technician, Mechanical & Electrical Maintenance Technician and Building Maintenance Technician. There are excellent opportunities for career advancement to supervisory positions and beyond.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
<td>24</td>
</tr>
<tr>
<td>Specialisation Modules</td>
<td>22</td>
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<tr>
<td>Life Skills Modules</td>
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<tr>
<td>Elective Modules</td>
<td>4</td>
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<tr>
<td>Total</td>
<td>60</td>
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</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.

COURSE STRUCTURE

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
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</tr>
<tr>
<td>Electrical Services</td>
<td>6</td>
</tr>
<tr>
<td>Mechanical Services</td>
<td>6</td>
</tr>
<tr>
<td>Residential Air-Conditioning Services</td>
<td>6</td>
</tr>
<tr>
<td>Piping and Plumbing Services</td>
<td>6</td>
</tr>
<tr>
<td><strong>SPECIALISATION MODULES</strong></td>
<td></td>
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<tr>
<td>Lift and Escalator System and Equipment Maintenance</td>
<td>5</td>
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<tr>
<td>Lift and Escalator Power and Control System</td>
<td>5</td>
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<tr>
<td>Maintenance</td>
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<tr>
<td>Lift and Escalator System Inspection and Testing</td>
<td>8</td>
</tr>
<tr>
<td>Industry Attachment</td>
<td>4</td>
</tr>
<tr>
<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
<td></td>
</tr>
<tr>
<td>Energy Audit</td>
<td>2</td>
</tr>
<tr>
<td>Building Fire-Fighting and Protection Systems</td>
<td>2</td>
</tr>
<tr>
<td><strong>ELECTIVES (JOINT ITE-INDUSTRY)</strong></td>
<td></td>
</tr>
<tr>
<td>Swimming Pool Maintenance</td>
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<tr>
<td>Pest Management</td>
<td>2</td>
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<tr>
<td><strong>ELECTIVES (GENERAL)</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to pages 302-304</td>
<td></td>
</tr>
<tr>
<td><strong>LIFE SKILLS MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to page 304</td>
<td></td>
</tr>
</tbody>
</table>
MODULE OBJECTIVES

Core Modules

Electrical Services
On completion of the module, students should be able to interpret electrical circuit diagrams; install conduits and trunkings; replace light fittings and accessories; rectify faults in electrical circuits; and conduct insulation resistance and continuity tests.

Mechanical Services
On completion of the module, students should be able to repair mechanical parts, service centrifugal pump, motor-drive assembly, air-cooled petrol and liquid-cooled diesel-driven portable generator, as well as replace faulty component of drive mechanism and door fittings.

Residential Air-Conditioning Services
On completion of the module, students should be able to install refrigeration piping, set up basic refrigeration system, install unitary and split-type air conditioners, replace faulty fan coil and condensing unit, and carry out preventive maintenance for residential air-conditioning system, water cooler and dehumidifier.

Piping and Plumbing Services
On completion of the module, students should be able to repair water supply and sanitary piping system, replace piping fittings, sanitary fixtures, rectify faulty water heaters, clear pipe and drain chokes, and inspect water pump and control systems.

Specialisation Modules

Lift and Escalator System and Equipment Maintenance
On completion of the module, students should be able to identify and explain the operation, interpret lift drawings, as well as maintain, service and repair mechanical equipment and components of lift and escalator system in accordance with lift engineering specifications and codes of practice.

Lift and Escalator Power and Control System Maintenance
On completion of the module, students should be able to maintain, service and repair lift controllers, electrical equipment, cables, components, as well as safety switches of lift and escalator systems in accordance with lift engineering specifications and codes of practice, including performing functionality checks of lift control system connection to BMS.

Lift and Escalator System Inspection and Testing
On completion of the module, students should be able to inspect and evaluate the condition of a lift hoistway, oversee the correct installation of lift equipment and components, as well as carry out heat run and commissioning tests on lift systems in accordance with lift engineering specifications and codes of practice. Students should also be able to troubleshoot, adjust and carry out routine and periodic maintenance of lift system and equipment, perform mandatory lift and escalator tests, as well as identify and recommend upgrading and improvement works to clients.

Industry Attachment
On completion of the module, students should be able to acquire and apply a cluster of key technical, social and methodological competencies in the occupation.

Electives (Course Specific)

Energy Audit
On completion of the module, students should be able to conduct on-site energy audit using the appropriate measuring instruments and tools and recommend corrective measures for energy savings.

Building Fire-Fighting and Protection Systems
On completion of the module, students should be able to service fire alarm and detection system, inspect one and two-ways emergency voice communication systems, automated sprinkler system, fire-fighting hydrants, hose reel system, fire suppression system and inspect portable types of fire extinguishers.

Electives (Joint ITE-Industry)

Swimming Pool Maintenance
On completion of the module, students should be able to carry out servicing, maintenance, repairs on swimming pool filtration system, and its equipment including carrying out water quality checks.

Pest Management
On completion of the module, students should be able to carry out pest inspection work, prepare worksite for pest management, use pesticides and pest management equipment, prepares pesticides and supervise pest control operations performed by workers hired by the company. Upon completion of the course, students will be qualified to be licensed as technicians under the Control of Vectors and Pesticides Act 1998.
Electives (General)
As reflected on pages 302-304.

Life Skills Modules
As reflected on page 304.
NITEC IN DIGITAL & PRECISION ENGINEERING

COURSE SYNOPSIS

On completion of the course, students should be able to

- Generate CNC part-programs using advanced CAD/CAM system.
- Monitor and control digital manufacturing processes.
- Manufacture precision components using laser, additive & machining technologies.
- Perform quality checks.

JOB OPPORTUNITIES

Nitec in Digital & Precision Engineering graduates are employed to work in related manufacturing industry in particular the Aerospace, Oil & Gas, Precision Modules & Components, Medical Manufacturing, Transport Engineering and Machinery & Systems sectors.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
<td>44</td>
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<tr>
<td>Life Skills Modules</td>
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<tr>
<td>Elective Modules</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>57</strong></td>
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</tbody>
</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
**MODULE OBJECTIVES**

**Core Modules**

**Engineering Drawing & Inspection Techniques**
On completion of the module, students should be able to interpret technical drawings and perform dimensional inspections for the machined components in accordance with ISO standards.

**Engineering Process (Turning)**
On completion of the module, students should be able to set up and operate conventional and CNC lathes to produce components in accordance with given specifications.

**Engineering Process (Milling)**
On completion of the module, students should be able to set up and operate conventional and CNC milling machines to produce components in accordance with given specifications.

**3D CAD/CAM Applications**
On completion of the module, students should be able to interpret engineering drawings, create 3D CAD models and, generate and verify CNC part programs using a CAD/CAM system for CNC lathes and CNC milling machines.

**Digital Manufacturing Processes**
On completion of the module, students should be able to use CAD/CAM systems to develop 3D digital models, set up and operate multi-axis CNC machines to produce precise components in accordance to given specifications. Student will also be able to review machining processes remotely with digital monitoring systems and interpret machine data to optimise cutting parameters and machine performance.

**Machine Monitoring System**
On completion of the module, students should be able to set up and operate CNC laser cutting machine to produce metal parts and injection moulding machine with pick & place robot to produce plastic parts. Student will also be able to use machine monitoring systems to monitor the overall efficiency of manufacturing processes and interpret production data to improve productivity.

**Industry Attachment**
Students will undergo a six-month internship with companies to deepen skills and knowledge acquired in ITE, and further develop competencies in areas related to precision engineering.

**Electives (Course Specific)**

**Assembly Skills**
On completion of the module, students should be able to select and use the correct hand tools for assembly and dismantle of mechanical components.

**Grinding**
On completion of the module, students should be able to understand the fundamentals of co-ordinate measuring techniques. They will be able to operate and apply the application to perform mathematical alignment of various simple geometrical components and obtain the measured results as required.

**Electives (Inter-disciplinary)**

**Design Conceptualization & Rapid Prototyping**
On completion of the module, students should be able to create a 3D solid model using CAD software and to operate the rapid prototyping printing machine to generate the 3D model.

**Electives (General)**
As reflected on pages 302-304.

**Life Skills Modules**
As reflected on page 304.
# NITEC IN ELECTRICAL TECHNOLOGY (LIGHTING & SOUND)

## COURSE SYNOPSIS

On completion of the course, students should be able to

- Liaise and coordinate with clients relating to the requirements of lighting, sound and visual media systems.
- Read and interpret drawings and diagrams of lighting, sound and visual media systems.
- Supervise packing, safe transportation and unpacking of lighting, sound and visual media systems.
- Set up, install, test, operate and maintain lighting, sound and visual media systems.
- Implement on-site safety programmes and ensure that lighting, sound and visual media systems for events and performances comply with regulations and requirements.

## JOB OPPORTUNITIES

*Nitec in Electrical Technology (Lighting & Sound)* graduates are employed by manufacturers and companies dealing in audio and visual, lighting and sound systems that are required for both outdoor and indoor events in the creative and performing arts industry. In addition, it is expected their skills and knowledge would be highly sought after in the MICE and hospitality sectors. Some of the job titles held by graduates include Electrical, Lighting & Sound Technician, Theatre Technician, Studio Technician, AV Specialist, Stage Technician, Rigging & Trussing Specialist, and AV Technician. There are excellent opportunities for career advancement to higher-level positions such as Lighting & Sound Designer and Consultant.

## CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
<td>24</td>
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<tr>
<td>Specialisation Modules</td>
<td>21</td>
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<td>Life Skills Modules</td>
<td>10</td>
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<td>Elective Modules</td>
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<td><strong>59</strong></td>
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</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.

## COURSE STRUCTURE

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
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<tr>
<td><strong>CORE MODULES</strong></td>
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</tr>
<tr>
<td>Residential Installation and Testing</td>
<td>6</td>
</tr>
<tr>
<td>Industrial and Commercial Installation and Testing</td>
<td>6</td>
</tr>
<tr>
<td>Digital Communication and Smart Monitoring</td>
<td>6</td>
</tr>
<tr>
<td>Power System and Switchboard</td>
<td>6</td>
</tr>
<tr>
<td><strong>SPECIALISATION MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Lighting Systems and Control</td>
<td>6</td>
</tr>
<tr>
<td>Sound Systems and Control</td>
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<tr>
<td>Visual Media Systems and Control</td>
<td>5</td>
</tr>
<tr>
<td>Industry Attachment</td>
<td>4</td>
</tr>
<tr>
<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
<td></td>
</tr>
<tr>
<td>PLC Applications and Networking</td>
<td>2</td>
</tr>
<tr>
<td>Entertainment Lighting Design</td>
<td>2</td>
</tr>
<tr>
<td>Smart Home</td>
<td>2</td>
</tr>
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<td>2</td>
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<tr>
<td><strong>ELECTIVES (INTER-DISCIPLINARY)</strong></td>
<td></td>
</tr>
<tr>
<td>Sensor Technology</td>
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<tr>
<td>SCADA</td>
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<td>Structured Cabling</td>
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<tr>
<td>Applied Pneumatic Control</td>
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</tr>
<tr>
<td><strong>ELECTIVES (JOINT ITE-INDUSTRY)</strong></td>
<td></td>
</tr>
<tr>
<td>PLC Control Builder</td>
<td>2</td>
</tr>
<tr>
<td><strong>ELECTIVES (GENERAL)</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to pages 302-304</td>
<td></td>
</tr>
<tr>
<td><strong>LIFE SKILLS MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to page 304</td>
<td></td>
</tr>
</tbody>
</table>
MODULE OBJECTIVES

Core Modules

Residential Installation and Testing
On completion of the module, students should be able to design, install, test and maintain single phase electrical installation and wiring systems in residential premises in compliance with relevant local standards, regulations and codes of practice.

Industrial and Commercial Installation and Testing
On completion of the module, students should be able to design, install, test and maintain three phase electrical installation and wiring systems in industrial and commercial premises in compliance with relevant local standards, regulations and codes of practice.

Digital Communication and Smart Monitoring
On completion of the module, students should be able to maintain data cabling system for digital internet communication as well as smart metering systems in compliance with relevant local standards, regulations and codes of practice.

Power System and Switchboard
On completion of the module, students should be able to perform proper isolation, lockout tag out procedures as well as maintain low voltage electrical switchboards, power monitoring system and temporary electrical supply system in compliance with relevant local standards, regulations and codes of practice.

Specialisation Modules

Lighting Systems and Control
On completion of the module, students should be able to install, test and operate lighting equipment and systems used in MICE, entertainment and performing arts industry in compliance with relevant local standards, regulations and codes of practice.

Sound Systems and Control
On completion of the module, students should be able to plan, install, test and maintain sound equipment and systems used in MICE, entertainment and performing arts industry in compliance with relevant local standards, regulations and codes of practice.

Visual Media Systems and Control
On completion of the module, students should be able to install, test and operate visual media equipment and systems used in MICE, entertainment and performing arts industry in compliance with relevant local standards, regulations and codes of practice.

Industry Attachment
Students will be attached to relevant companies to complement and reinforce the skills and knowledge acquired at ITE and to gain professional and working experience.

Electives (Course Specific)

PLC Applications and Networking
On completion of the module, students should be able to set up, configure and test a PLC network for an industrial automation system.

Entertainment Lighting Design
On completion of the module, students should be able to apply the knowledge of basic lighting design principles and techniques in producing a small entertainment show using lighting visualization software.

Smart Home
On completion of the module, students should be able to program a smart home system for controlling lighting in a house.

3D Audio and Acoustics
On completion of the module, students should be able to apply the knowledge, skills of 3D audio for live, and studio applications, which includes the ability to employ the right type of equipment to carry out, setting up 3D sound systems. Student should also be able to apply the knowledge and skills in acoustic fundamentals, which includes understanding room mode and acoustic treatment.

Electives (Inter-disciplinary)

Sensor Technology
On completion of the module, students should be able to explain the principles of operation, characteristics and applications of various sensors in industrial and electrical engineering works.

SCADA
On completion of the module, students should be able to explain the basic configuration and provide an overview of a SCADA system. They are also trained to explain the techniques and methods used on data acquisition, the control of the field devices, communication, applications and operation of the system.
Structured Cabling
On completion of the module, students should be able to explain the principle of structured cabling and install a standard cabling system according to the relevant standard. They should also be able to perform testing and trouble-shooting and certify the quality of structured cabling installations with both copper and fibre-optic cables.

Applied Pneumatic Control
On completion of the module, students should be able to develop control circuits based on knowledge of the construction, principles of operation and application of the various components and equipment in electromechanical, pneumatic and electro-pneumatic control systems.

Electives (Joint ITE-Industry)

PLC Control Builder
On completion of the module, students should be able to use PLC engineering tool to configure projects based on IEC61131-3 standard with one or several applications running in PLC.

Electives (General)
As reflected on pages 302-304.

Life Skills Modules
As reflected on page 304.
NITEC IN ELECTRICAL TECHNOLOGY (POWER & CONTROL)

COURSE SYNOPSIS

On completion of the course, students should be able to

- Design, install, repair, maintain, operate, inspect and test electrical or supply installations where the operating voltage and approved load do not exceed 1,000 volts and 45 kVA respectively.
- Maintain electrical installations and equipment in compliance with relevant codes of practice for electrical installations and other related statutory requirements.
- Install and maintain control and automation equipment and systems for industrial control applications.
- Install and maintain electrical motor and equipment.
- Install and maintain special electrical installations, electric vehicle charging infrastructure equipment, solar photovoltaic installations and fire alarm systems.
- Install and maintain communication and data cabling equipment and systems.

Remarks:
Graduates who have acquired two years of relevant experience in the electrical work performed by a licensed electrician would be eligible to apply to Energy Market Authority (EMA) to sit for the test leading to the award of an Electrician Licence issued by EMA.

JOB OPPORTUNITIES

Nitec in Electrical Technology (Power & Control) graduates are employed by government departments, statutory boards, electricity generation, transmission and distribution companies, manufacturing plants, and companies dealing in M & E consultancy services, electrical engineering works and building services. Some of the job titles held by graduates include Electrical Technician, Electrical Installation Technician, Electrical Power Technician, Electrical Equipment Manufacturing Technician and Electrical Draughtsman. There are excellent opportunities for career advancement to supervisory positions and beyond.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
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<tr>
<td>Specialisation Modules</td>
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<td>Life Skills Modules</td>
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<tr>
<td><strong>Total</strong></td>
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COURSE STRUCTURE

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Residential Installation and Testing</td>
<td>6</td>
</tr>
<tr>
<td>Industrial and Commercial Installation and Testing</td>
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<tr>
<td>Power System and Switchboard</td>
<td>6</td>
</tr>
<tr>
<td><strong>SPECIALISATION MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Sustainable Energy Systems</td>
<td>5</td>
</tr>
<tr>
<td>Smart Living Systems</td>
<td>5</td>
</tr>
<tr>
<td>Electrical Machines and Applications</td>
<td>6</td>
</tr>
<tr>
<td>Industry Attachment</td>
<td>4</td>
</tr>
<tr>
<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
<td></td>
</tr>
<tr>
<td>PLC Applications and Networking</td>
<td>2</td>
</tr>
<tr>
<td>Entertainment Lighting Design</td>
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<tr>
<td><strong>ELECTIVES (JOINT ITE-INDUSTRY)</strong></td>
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</tr>
<tr>
<td>PLC Control Builder</td>
<td>2</td>
</tr>
</tbody>
</table>
Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.

### Module Title

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td><strong>ELECTIVES (GENERAL)</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to pages 302-304</td>
<td></td>
</tr>
<tr>
<td><strong>LIFE SKILLS MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to page 304</td>
<td></td>
</tr>
</tbody>
</table>

### Module Objectives

#### Core Modules

**Residential Installation and Testing**
On completion of the module, students should be able to design, install, test and maintain single phase electrical installation and wiring systems in residential premises in compliance with relevant local standards, regulations and codes of practice.

**Industrial and Commercial Installation and Testing**
On completion of the module, students should be able to design, install, test and maintain three phase electrical installation and wiring systems in industrial and commercial premises in compliance with relevant local standards, regulations and codes of practice.

**Digital Communication and Smart Monitoring**
On completion of the module, students should be able to maintain data cabling system for digital internet communication as well as smart metering systems in compliance with relevant local standards, regulations and codes of practice.

**Power System and Switchboard**
On completion of the module, students should be able to perform proper isolation, lockout tag out procedures as well as maintain low voltage electrical switchboards, power monitoring system and temporary electrical supply system in compliance with relevant local standards, regulations and codes of practice.

#### Specialisation Modules

**Sustainable Energy Systems**
On completion of the module, students should be able to install, test and/or maintain solar photovoltaic (PV) systems for residential premises, electrical industrial equipment and appliances and electric vehicle (EV) charging equipment and systems in compliance with relevant local standards, regulations and codes of practice.

**Smart Living Systems**
On completion of the module, students should be able to program, test and maintain smart home control systems in compliance with relevant local standards, regulations and codes of practice.

**Electrical Machines and Applications**
On completion of the module, students should be able to maintain electrical motor installations including their associated conventional, digital and advanced control systems for various industrial motor applications in compliance with relevant local standards, regulations and codes of practice.

**Industry Attachment**
Students will be attached to relevant companies to complement and reinforce the skills and knowledge acquired at ITE and to gain professional and working experience.

#### Electives (Course Specific)

**PLC Applications and Networking**
On completion of the module, students should be able to set up, configure and test a PLC network for an industrial automation system.

**Entertainment Lighting Design**
On completion of the module, students should be able to apply the knowledge of basic lighting design principles and techniques in producing a small entertainment show using lighting visualization software.

**Smart Home**
On completion of the module, students should be able to program a smart home system for controlling lighting in a house.
3D Audio and Acoustics
On completion of the module, students should be able to apply the knowledge, skills of 3D audio for live, and studio applications, which includes the ability to employ the right type of equipment to carry out, setting up 3D sound systems. Student should also be able to apply the knowledge and skills in acoustic fundamentals, which includes understanding room mode and acoustic treatment.

Electives (Inter-disciplinary)

Sensor Technology
On completion of the module, students should be able to explain the principles of operation, characteristics and applications of various sensors in industrial and electrical engineering works.

SCADA
On completion of the module, students should be able to explain the basic configuration and provide an overview of a SCADA system. They are also trained to explain the techniques and methods used on data acquisition, the control of the field devices, communication, applications and operation of the system.

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On completion of the module, students should be able to explain the principle of structured cabling and install a standard cabling system according to the relevant standard. They should also be able to perform testing and trouble-shooting and certify the quality of structured cabling installations with both copper and fibre-optic cables.

Applied Pneumatic Control
On completion of the module, students should be able to develop control circuits based on knowledge of the construction, principles of operation and application of the various components and equipment in electromechanical, pneumatic and electro-pneumatic control systems.

Electives (Joint ITE-Industry)

PLC Control Builder
On completion of the module, students should be able to use PLC engineering tool to configure projects based on IEC61131-3 standard with one or several applications running in PLC.

Electives (General)
As reflected on pages 302-304.

Life Skills Modules
As reflected on page 304.
NITEC IN MECHANICAL TECHNOLOGY

COURSE SYNOPSIS

On completion of the course, students should be able to

- Interpret technical drawings and hydraulic/pneumatic circuit diagrams.
- Carry out preventive maintenance and inspection on machinery and equipment.
- Fabricate and re-condition machine parts using basic hand-tools and power hand-tools and drilling machines.
- Install, service, troubleshoot, repair and overhaul basic machine tools, pumps, valves, compressors and conveyor systems.
- Install, service, troubleshoot and repair basic hydraulic and pneumatic systems.
- Install pipework system.
- Rectify electrical faults of machinery.

JOB OPPORTUNITIES

Nitec in Mechanical Technology graduates are employed by companies that manufacture metal and plastic products, and food and beverage items. Some of the job titles held by graduates include Maintenance Technician, Mechanical Engineering Technician and Industrial Machinery Technician. There are excellent opportunities for career advancement to supervisory positions and beyond.

CERTIFICATION

Credits required for certification:

| Core Modules | 44 |
| Life Skills Modules | 9 |
| Elective Modules | 4 |
| **Total** | **57** |

Module Title | Credits |
--- | --- |
CORE MODULES | |
CAD and 3D Printing | 6 |
Industrial Piping and Valve System | 6 |
Machinery Maintenance | 6 |
Electro Pneumatics and Hydraulics | 6 |
IoT and Electrical Applications | 6 |
Plant Equipment Maintenance | 6 |
Industry Attachment | 8 |

ELECTIVES (COURSE SPECIFIC)

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Metrology</td>
<td>2</td>
</tr>
<tr>
<td>Mechanical Fabrication</td>
<td>2</td>
</tr>
<tr>
<td>Engineering Design</td>
<td>2</td>
</tr>
<tr>
<td>Turning</td>
<td>2</td>
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<tr>
<td>Bearing Technology</td>
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ELECTIVES (INTER-DISCIPLINARY)

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Advanced PLC Applications</td>
<td>2</td>
</tr>
<tr>
<td>Microcontroller Applications</td>
<td>2</td>
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<tr>
<td>Plain Milling</td>
<td>2</td>
</tr>
<tr>
<td>Product Prototyping</td>
<td>2</td>
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</tbody>
</table>

ELECTIVES (GENERAL)

Refer to pages 302-304

LIFE SKILLS MODULES

Refer to page 304

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

CAD and 3D Printing
On completion of the module, students should be able to interpret engineering blueprint drawings, draw engineering components, update engineering drawings and convert 3D models to 2D drawings by using CAD system. Students should also be able to print 3D models from 3D printer and perform free hand sketching of engineering drawings.

Industrial Piping and Valve System
On completion of the module, students should be able to carry out minor repair and replacement of fluid supply pipes and fittings; maintain, troubleshoot and repair industrial fluid valves.

Electro Pneumatics and Hydraulics
On completion of the module, students should be able to install, maintain and troubleshoot electro-pneumatic and electro-hydraulic systems in plant machinery and auxiliary equipment.

Machinery Maintenance
On completion of the module, students should be able to maintain and service bearings and basic engineering mechanisms, lubrication systems and mechanical transmission systems; lift and move heavy loads safely. Students should also be able to maintain, troubleshoot and repair machinery and equipment.

Electives (Course Specific)

Metrology
On completion of the module, students should be able to inspect, verify and measure engineering components according to technical drawing using of appropriate tools.

Mechanical Fabrication
On completion of the module, students should be able to fabricate and fit engineering components by bench fitting, sawing drilling, reaming and tapping operations according to the specifications in a working drawing.

Electro Pneumatics and Hydraulics
On completion of the module, students should be able to install, maintain and troubleshoot electro-pneumatic and electro-hydraulic systems in plant machinery and auxiliary equipment.

IoT and Electrical Applications
On completion of the module, students should be able to program microcontroller using High Level Programming Language, transmit data collected from sensors to Cloud Server to be presented as graphical information. Students should also be able understand types of electrical accessories, connect up simple electrical circuits and replace faulty electrical components.

Plant Equipment Maintenance
On completion of the module, students should be able to install, maintain, troubleshoot and repair air compressor system, mechanical conveyor system and industrial fluid pumps.

Industry Attachment
On completion of the module, students should be able to acquire and apply a cluster of key technical, social and methodological competencies in the occupation.

Engineering Design
On completion of the module, students should be able to design mechanical components and create assembly drawings according to given specifications.

Turning
On completion of the module, students should be able to interpret engineering blueprint drawings, turn components safely using centre lathe to achieve a linear dimensional accuracy up to class IT11, an angular dimensional accuracy of ±30’ and surface roughness between 1.6 to 3.2 microns.

Electives (Inter-disciplinary)

Advanced PLC Applications
On completion of the module, students should be able to apply PLC instructions in the design of an industrial automation project and analogue-to-digital processing using Windows-based PLC programming software.

Microcontroller Applications
On completion of the module, students should be able to design and write programs for simple microcontroller projects.

Plain Milling
On completion of the module, students should be able to interpret technical drawings, mill plain components safely, using a vertical milling machine and supporting tools, to achieve a linear dimensional accuracy of IT10, an angular dimensional accuracy of ±30’ and a surface roughness between 1.6 to 3.2 microns.
Product Prototyping
On completion of the module, students should be able to create simple design of a product using 3D CAD software and produce a 3D model of it using basic prototyping devices.

Electives (General)
As reflected on pages 302-304.

Life Skills Modules
As reflected on page 304.
NITEC IN MECHATRONICS & ROBOTICS

COURSE SYNOPSIS

On completion of the course, students should be able to

- Install, maintain and service pneumatic and electro-pneumatic controlled systems.
- Construct and assemble mechanical support.
- Prepare and interpret electrical and mechanical drawings.
- Install and test electrical systems.
- Install and test peripheral devices and microcomputer controlled systems.
- Troubleshoot electronics systems.
- Set up industrial automation systems, modify PLC program and troubleshoot a simple automated production system at module level.

JOB OPPORTUNITIES

Nitec in Mechatronics and Robotics graduates are generally employed by companies in the high-technology automated engineering and servicing industries. Some of the job titles held by graduates include Automation Technician, Automated Equipment Maintenance Technician, Mechatronics Technician and Associate Engineer. The increasing demand in widely use of robotics and automation technology in healthcare, construction, manufacturing and logistics industries will certainly enhance the career prospects for the graduates moving forward.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
<td>44</td>
</tr>
<tr>
<td>Life Skills Modules</td>
<td>9</td>
</tr>
<tr>
<td>Elective Modules</td>
<td>4</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>57</strong></td>
</tr>
</tbody>
</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Pneumatics
On completion of the module, students should be able to install, maintain and troubleshoot pneumatic and electro-pneumatic systems.

Robotics
On completion of the module, students should be able to install, program, troubleshoot and maintain a robotics system.

Electrical and Electronics Practices
On completion of the module, students should be able to install electrical trunking, carry out system wiring for machine control, check and test industrial electronics components and simple electronics circuits using common test instruments to identify and rectify faults.

CAD and Mechanical Systems
On completion of the module, students should be able to read, interpret and produce geometrical and mechanical drawings using Computer-Aided Drafting (CAD) software; fabricate parts according to specifications in work drawing and work samples; carry out maintenance to service, adjust and align mechanical elements.

Drives and Motor Control
On completion of the module, students should be able to install, maintain, troubleshoot and modify common AC and DC motor and control circuits used in automated and manufacturing systems.

PLC and Automation
On completion of the module, students should be able to carry out installations, operations and troubleshooting of programmable logic controller & sensors systems used in automated system and manufacturing systems.

Industry Attachment
On completion of the module, students should be able to acquire and apply a cluster of key technical, social and methodological competencies in the occupation.

Electives (Course Specific)

Application Mathematics
On completion of the module, students should be able to apply the knowledge of mathematics to solve engineering related problems involving the use of basic arithmetic, algebra, graphs and trigonometry.

Animatronics
On completion of the module, students should be able to define type of animatronic components and controller as well as assemble and testing of animatronic character.

Microcontroller Applications
On completion of the module, students should be able to program and interface microcontroller with external devices.

Production Control System and Applications
On completion of the module, students should be able to plan a simple production process, set up, install and troubleshoot an industrial production control system.

Electives (Inter-disciplinary)

Hydraulics
On completion of the module, students should be able to maintain hydraulic systems in industrial automation.

Single Board Micro-controller Applications
On completion of the module, students should be able to write structured programs to interface with peripheral devices and solve simple problems using single board micro-controller.

Lean Manufacturing
On completion of the module, students should be able to work effectively as a team member to support lean manufacturing and process improvement in the industries and apply PDCA in continuous process improvement to increase productivity.

Electives (Joint ITE-Industry)

Robot Palletizing Operations and Programming
On completion of the module, students should be able to operate the palletizing robot system, including editing and modifying programs for different palletizing operations.

Electives (General)
As reflected on pages 302-304.

Life Skills Modules
As reflected on page 304.
NITEC IN RAPID TRANSIT TECHNOLOGY

COURSE SYNOPSIS

On completion of the course, students should be able to

- Perform basic inspection of railway subsystems and facilities.
- Maintain railway electrical and electronics equipment and systems.
- Maintain railway mechanical and pneumatic equipment and systems.
- Maintain rolling stock systems and equipment.
- Maintain permanent way and tracks.
- Maintain engineering train equipment and systems.

JOB OPPORTUNITIES

Nitec in Rapid Transit Technology graduates can be employed by mass rapid transit operators, Government transport planning agencies as well as companies in the rail equipment industry. Some of the job titles that are held by graduates include Rapid Transit Technical Officer, Trains and Rolling Stock Technician and Permanent Way Field Services Technician. There are excellent opportunities for career advancement to supervisory positions and beyond.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
<td>45</td>
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<tr>
<td>Life Skills Modules</td>
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<tr>
<td>Elective Modules</td>
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</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>59</strong></td>
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Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.

COURSE STRUCTURE

<table>
<thead>
<tr>
<th>Module Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Rapid Transit Systems &amp; Controls</td>
<td>5</td>
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<tr>
<td>Rapid Transit Electrical Practices</td>
<td>6</td>
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<tr>
<td>Rapid Transit Electronics Practices</td>
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<tr>
<td>Rapid Transit Mechanical Practices</td>
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<td>Rapid Transit Light Rail Systems</td>
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<td>Rapid Transit Rolling Stock</td>
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<tr>
<td>Rapid Transit Permanent Way</td>
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<tr>
<td>Industry Attachment</td>
<td>4</td>
</tr>
<tr>
<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
<td></td>
</tr>
<tr>
<td>Basic Fire Safety and Protection Systems</td>
<td>2</td>
</tr>
<tr>
<td>Technical Mathematics (Rapid Transit)</td>
<td>3</td>
</tr>
<tr>
<td>Mechanical Tools and Applications</td>
<td>2</td>
</tr>
<tr>
<td><strong>ELECTIVES (INTER-DISCIPLINARY)</strong></td>
<td></td>
</tr>
<tr>
<td>Video Surveillance System</td>
<td>2</td>
</tr>
<tr>
<td>Metrology</td>
<td>2</td>
</tr>
<tr>
<td>Bearing Maintenance Technology</td>
<td>2</td>
</tr>
<tr>
<td><strong>ELECTIVES (GENERAL)</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to pages 302-304</td>
<td></td>
</tr>
</tbody>
</table>

LIFE SKILLS MODULES

Refer to page 304
MODULE OBJECTIVES

Core Modules

Rapid Transit Systems & Controls
On completion of the module, students should be able to maintain electro-pneumatic, electro-hydraulic and PLC systems; and explain the special features of trains, railway engineering technologies, rapid transit facilities and rail regulatory compliance measures and workplace safety regulations.

Rapid Transit Electrical Practices
On completion of the module, students should be able to maintain and troubleshoot electrical circuits and equipment, motor control circuits and train electrical systems.

Rapid Transit Electronics Practices
On completion of the module, students should be able to maintain and troubleshoot analogue and digital electronics equipment as well as electromechanical control systems.

Rapid Transit Mechanical Practices
On completion of the module, students should be able to perform mechanical fabrication and maintain mechanical assemblies for rail operations.

Rapid Transit Light Rail Systems
On completion of the module, students should be able to maintain, troubleshoot, service and repair light rail propulsion, battery, bogie and undercarriage systems and equipment.

Rapid Transit Rolling Stock
On completion of the module, students should be able to maintain train air-conditioning, ventilation, brakes, bogie and cabin equipment and door control systems.

Rapid Transit Permanent Way
On completion of the module, students should be able to maintain permanent way parts and tracks as well as third rail and current collection systems for trains.

Industry Attachment
On completion of the module, students should be able to apply the skills and knowledge acquired to take on a range of job scope at the company.

Electives (Course Specific)

Basic Fire Safety and Protection Systems
On completion of the module, students should be able to diagnose, service and maintain fire-fighting equipment such as fire-alarm systems, hose-reel installations, sprinkler systems, fire-fighting hydrants, portable fire extinguishers, one- and two-way emergency voice communication systems and fire suppression systems in the industrial, commercial and residential building.

Technical Mathematics (Rapid Transit)
On completion of the module, students should be able to understand and apply basic mathematical principles in to use and operate scientific calculators; perform arithmetic operations, numerical ten and SI prefix conversions, rearrangement of mathematical terms, data collection including interpreting straight line graphs, charts and data.

Mechanical Tools and Applications
On completion of the module, students should be able to apply knowledge and skills to perform mechanical maintenance and repair of fastening devices.

Electives (Inter-disciplinary)

Video Surveillance System
On completion of the module, students should be able to install, test and operate the video surveillance systems and equipment.

Metrology
On completion of the module, students should be able to understand the fundamental of inspection and, verify and measure engineering components according to technical drawing using appropriate tools.

Bearing Maintenance Technology
On completion of the module, students should be able to apply the skills and knowledge to select, replace and diagnose anti-friction bearing faults.

Electives (General)
As reflected on pages 302-304.

Life Skills Modules
As reflected on page 304.
**NITEC IN URBAN GREENERY & LANDSCAPE**

**COURSE SYNOPSIS**

On completion of the course, students should be able to:

- Coordinate and run daily operations of landscape construction and maintenance.
- Construct and maintain landscaped areas including urban greenery, skyrise greenery, gardens, golf courses, turf/sports turf and parks.
- Implement landscape works according to workplan.
- Perform preventive and corrective measures for common pests and diseases.
- Maintain drainage and irrigation systems.
- Operate and maintain landscape related machinery and equipment.
- Manage nursery production, maintenance, inventory and procurement.

**JOB OPPORTUNITIES**

*Nitec* in Urban Greenery & Landscape graduates are employed in landscape construction and maintenance companies. Some of the job titles held by graduates include Assistant Landscape Supervisors, Senior Landscape Technicians, Senior Floricultural Technicians, Senior Interiorscapes Technician, Horticultural Landscaper and Park Officers. There are excellent opportunities for career advancement to supervisory positions and beyond.

**CERTIFICATION**

Credits required for certification:

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
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<tr>
<td>Life Skills Modules</td>
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<td><strong>Total</strong></td>
<td><strong>61</strong></td>
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</table>

**COURSE STRUCTURE**

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Introduction to Horticulture</td>
<td>7</td>
</tr>
<tr>
<td>Landscape Services</td>
<td>6</td>
</tr>
<tr>
<td>Nursery Services</td>
<td>6</td>
</tr>
<tr>
<td>Electrical Services</td>
<td>6</td>
</tr>
<tr>
<td>Arboriculture Services</td>
<td>6</td>
</tr>
<tr>
<td>Turf Services</td>
<td>6</td>
</tr>
<tr>
<td>Urban Greenery</td>
<td>6</td>
</tr>
<tr>
<td>Industry Attachment</td>
<td>4</td>
</tr>
<tr>
<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
<td></td>
</tr>
<tr>
<td>Floral Design</td>
<td>2</td>
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<tr>
<td><strong>ELECTIVES (INTER-DISCIPLINARY)</strong></td>
<td></td>
</tr>
<tr>
<td>Engineering Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>Elementary Land Surveying</td>
<td>3</td>
</tr>
<tr>
<td>Introduction to Urban Farming</td>
<td>3</td>
</tr>
<tr>
<td><strong>ELECTIVES (JOINT ITE-INDUSTRY)</strong></td>
<td></td>
</tr>
<tr>
<td>Swimming Pool Maintenance</td>
<td>2</td>
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<tr>
<td><strong>ELECTIVES (GENERAL)</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to pages 302-304</td>
<td></td>
</tr>
<tr>
<td><strong>LIFE SKILLS MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to page 304</td>
<td></td>
</tr>
</tbody>
</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Introduction to Horticulture
On completion of the module, students should be able to perform plant identification and plant health diagnostics, recognise basic plant anatomy and morphology, and interpret work plan for landscape maintenance works.

Landscape Services
On completion of the module, students should be able to prepare landscape work plan, maintain softscape and hardscape, prepare and apply chemicals and fertiliser, supervise installation of landscape structure and facilities, supervise implementation of landscape work, and maintain landscape equipment and machinery.

Nursery Services
On completion of the module, students should be able to propagate ornamental plants in nurseries, maintain nursery facilities and worksite, coordinate nursery operations, transportation of nursery products and crop harvesting, supervise and coordinate the post-harvest operations and nursery production programme, recognise and control pests, diseases and weed, and record and update stock.

Electrical Services
On completion of the module, students should be able interpret electrical circuit diagrams, install conduits and trunkings, replace light fittings and accessories, rectify faults in electrical circuits, and conduct insulation resistance and continuity tests.

Arboriculture Services
On completion of the module, students should be able to plant, transplant, remove and prune trees and palms, perform visual tree assessment (VTA) and inspection, perform tree protection and tree health maintenance, and maintain arboriculture equipment.

Turf Services
On completion of the module, students should be able to supervise installation and maintenance of subsoil drainage and irrigation systems, maintain golf courses and turf, monitor turf health and repair damaged turf, maintain turf equipment, and perform a range of basic field and lab testing on soil.

Urban Greenery
On completion of the module, students should be able to recognise different types of urban greenery, skyrise greenery and urban farming systems, landscape light fixtures and irrigation components, implement automation in landscape works, install water features, and implement irrigation system for urban landscape.

Industry Attachment
Students will be attached to landscape companies to reinforce the skills and knowledge acquired at ITE as well as gain professional and working experience.

Electives (Course Specific)

Floral Design
On completion of the module, students should be able to identify, select, design and arrange suitable flora and fauna schemes to meet different Client’s requirements during different occasions.

Electives (Inter-disciplinary)

Engineering Mathematics
On completion of the module, students should be able to solve engineering problems involving indices, logarithms, algebra, graphs, trigonometry, complex numbers and basic statistics.

Elementary Land Surveying
On completion of the module, students should be able to perform a site survey using basic surveying equipment. Students will be able to set up and use the surveying equipment, conduct a closed survey and verify basic survey plan to incorporate levels and contours according to landscape specification.

Introduction to Urban Farming
On completion of the module, students should be able to perform basic urban farming techniques to achieve sustainable farming outcome. Students will be able to set up urban farming systems using different medium such as water based and soil based system, incorporating technology, such as use of LED lightings to enhance the photosynthesis of crops for indoor setting.

Electives (Joint ITE-Industry)

Swimming Pool Maintenance
On completion of the module, students should be able to carry out servicing, maintenance and repair on swimming pool filtration system; and carry out water quality checks.
Electives (General)
As reflected on pages 302-304.

Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN CULINARY ARTS

COURSE SYNOPIS

Students would be trained to produce a range of dishes using advanced cooking techniques, apply principles of food nutrition in food preparation, analyse dishes using sensory analytics, create customised menus and recipes, as well as manage budget for kitchen operations and food catering for events and functions.

On completion of the course, students should be able to

- Produce a range of dishes using advanced cooking techniques.
- Apply principles of food nutrition in food preparation.
- Analyse dishes using sensory analytics.
- Create customised menus and recipes.
- Manage food catering for events and functions.

JOB OPPORTUNITIES

Higher Nitec in Culinary Arts graduates are employed as Senior Cooks in restaurants and food and beverage outlets in hotels. There are opportunities for career advancement to supervisory positions and beyond. Senior Cooks with work experience and good performance may be promoted to supervisory positions such as Chef de Partie or Sous Chef.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
<td>24</td>
</tr>
<tr>
<td>Life Skills Modules</td>
<td>3</td>
</tr>
<tr>
<td>Elective Modules</td>
<td>2</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>29</strong></td>
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</tbody>
</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Advanced Cooking Techniques
On completion of the module, students should be able to apply advanced cooking techniques to produce a range of dishes customised to consumers’ palate and preference.

Food Nutrition and Sensory Analytics
On completion of the module, students should be able to recommend healthy food choices to customers, and perform sensory evaluation of dishes using their five senses.

Menu Formulation and Cost Control
On completion of the module, students should be able to formulate customised menu and recipe, and manage budget for kitchen operation.

Catering Organisation and Production
On completion of the module, students should be able to manage food catering events which include preparing purchase list, receiving supplies from vendors, producing catered food in teams, and implementing workplace safety and health policies and procedures.

Industry Attachment
Students will go on a 6-month industry attachment at a restaurant/food and beverage outlet in hotels to gain hands-on practical training in a real-work environment.

Electives (Course Specific)

Interpreting Data for Food & Beverage Operations
On completion of the module, students should be able to generate data from Point-of-Sale (POS) system, organise data using Pivot Table and interpret data.

Electives (General)
As reflected on pages 300-301.

Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN HOSPITALITY OPERATIONS

COURSE SYNOPSIS

Students would be trained to perform a range of operational functions within an accommodation establishment to meet the needs of guests for a comfortable and enjoyable stay.

On completion of the course, students should be able to

- Handle room reservations.
- Handle guest arrival and departure.
- Provide guest services.
- Provide club floor services.
- Handle guest relations and service recovery.
- Perform housekeeping services.

JOB OPPORTUNITIES

Higher Nitec in Hospitality Operations graduates can be employed by hotels and other establishments in the hospitality sector. Some of the job titles held by graduates include Front Office Officer, Guest Relations Officer, Club Floor Officer and Reservations Officer.

CERTIFICATION

Credits required for certification:

| Core Modules       | 50 |
| Life Skills Modules|  9 |
| Elective Modules   |  6 |
| **Total**          | 65 |

COURSE STRUCTURE

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Hospitality Service and Communication</td>
<td>7</td>
</tr>
<tr>
<td>Introduction to Hospitality and Tourism</td>
<td>5</td>
</tr>
<tr>
<td>Executive Lounge Operations</td>
<td>7</td>
</tr>
<tr>
<td>Hospitality Event Management</td>
<td>5</td>
</tr>
<tr>
<td>Front Office Operations</td>
<td>6</td>
</tr>
<tr>
<td>Hospitality IT Systems</td>
<td>6</td>
</tr>
<tr>
<td>Housekeeping Services</td>
<td>6</td>
</tr>
<tr>
<td>Industry Attachment</td>
<td>8</td>
</tr>
<tr>
<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
<td></td>
</tr>
<tr>
<td>Introduction to Hospitality Law and Security</td>
<td>3</td>
</tr>
<tr>
<td>Data Analytics for Hospitality</td>
<td>3</td>
</tr>
<tr>
<td>Fundamentals of Wine</td>
<td>3</td>
</tr>
<tr>
<td>Fundamentals of Barista Art</td>
<td>3</td>
</tr>
<tr>
<td>Hospitality Event Operations</td>
<td>3</td>
</tr>
<tr>
<td><strong>ELECTIVES (INTER-DISCIPLINARY)</strong></td>
<td></td>
</tr>
<tr>
<td>Fundamentals of Hawker Entrepreneurship</td>
<td>3</td>
</tr>
<tr>
<td>Fundamentals of Western Cuisine</td>
<td>3</td>
</tr>
<tr>
<td>Fundamentals of Pastry &amp; Baking</td>
<td>3</td>
</tr>
<tr>
<td><strong>ELECTIVES (GENERAL)</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to pages 300-301</td>
<td></td>
</tr>
<tr>
<td><strong>LIFE SKILLS MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to page 304</td>
<td></td>
</tr>
</tbody>
</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Hospitality Service and Communication
On completion of the module, students should be able to handle communications required at the workplace at a functional level. They will be able to apply communicative skills (listening, speaking, reading and writing) at workplace. Students will also be able to handle guests’ concerns and feedback, manage guests’ needs and expectations, and respond to service challenges.

Introduction to Hospitality and Tourism
On completion of the module, students should be able to provide an overview of the travel and tourism industry including the hospitality sector, and offer travel and accommodation advice to guests. Students will learn the motivations that draw tourists into Singapore.

Executive Lounge Operations
On completion of the module, students should be able to prepare the executive lounge for service and manage inventory. They should also be able to prepare drinks, coffee and tea, serve wine, process guest orders and provide butler service.

Hospitality Event Management
On completion of the module, students should be able to prepare sales proposal, conduct site inspection, plan logistics and organise events.

Front Office Operations
On completion of the module, students should be able to handle the arrival and departure of guests, perform cashiering and provide concierge services.

Hospitality IT Systems
On completion of the module, students should be able to use a computerised property management system to process reservations, manage guest folios, handle financial transactions and manage guest records. They should also be able to use word processing and spreadsheet to develop reports, worksheets and charts.

Housekeeping Services
On completion of the module, students should be able to handle housekeeping requests, prepare rooms for guests and process laundry and linen items. They should also be able to assess and respond to housekeeping emergencies and security breaches.

Industry Attachment
Students are provided with the opportunity to work in a hospitality setting for 6 months.

Electives (Course Specific)

Introduction to Hospitality Law and Security
On completion of the module, students should be able to identify the local laws and regulations governing the hospitality industry and be cognizant of the legal impact of their actions that may affect them, the guests and the hotel when serving guests.

Data Analytics for Hospitality
On completion of the module, students should be able to identify business needs, collect, analyse and interpret data using appropriate tools and techniques, as well as generate charts and reports to make informed decisions.

Fundamentals of Wine
On completion of this module, students should be able to present and serve wine as well as recommend food and wine pairings.

Fundamentals of Barista Art
On completion of the module, students should be able to organise barista workstation, grind coffee beans, prepare common coffee beverages and close barista workstation.

Hospitality Event Operations
On completion of this module, students should be able to prepare an event proposal, organise and assist in running an event. They should also be able to work with various departments to coordinate the logistics required and follow-up on post-event activities.

Electives (Inter-disciplinary)

Fundamentals of Hawker Entrepreneurship
On completion of the module, students should be able to set up hawker stall as well as prepare ingredients, spice mix and a range of hawker dishes according to specified recipes.

Fundamentals of Western Cuisine
On completion of the module, students should be able to demonstrate basic knife skills, prepare basic stocks, basic sauces, clear soup (consommé) and a range of main dishes according to specified recipes.
Fundamentals of Pastry & Baking
On completion of the module, students should be able to prepare a range of sweet pastry, choux pastry, cookies, basic cakes as well as mousse cakes according to specified recipes.

Electives (General)
As reflected on pages 300-301.

Life Skills Modules
As reflected on page 304.
HIGHER NITEC IN PASTRY & BAKING

COURSE SYNOPSIS

Students would be trained to produce a range of artisan and decorative breads, yeast-raised pastry products, entremets, sugar and chocolate displays/decorations and contemporary desserts, as well as create nutritious menus and recipes for customers.

On completion of the course, students should be able to

• Prepare mise en place for pastry and baking products.
• Process basic baking ingredients.
• Produce a range of artisan and decorative breads.
• Produce a range of yeast-raised pastry products.
• Produce a range of entremets.
• Prepare a range of chocolate and sugar displays/decorations.
• Design contemporary plated desserts.
• Analyse pastry and baking products.
• Create menu and recipes.

JOB OPPORTUNITIES

Higher Nitec in Pastry & Baking graduates are employed as Pastry Cooks/Bakers in hotels, restaurants and bakeries. There are opportunities for career advancement to supervisory positions and beyond. Pastry Cook/Baker with work experience and good performance may be promoted to supervisory positions, such as Assistant Pastry Chef/Head Baker.

CERTIFICATION

Credits required for certification:

| Core Modules | 28 |
| Life Skills Modules | 3 |
| Elective Modules | 2 |
| **Total** | **33** |

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.

COURSE STRUCTURE

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Advanced Pastry and Baking</td>
<td>5</td>
</tr>
<tr>
<td>Advanced Decorations, Confectionery and Contemporary Desserts</td>
<td>5</td>
</tr>
<tr>
<td>Nutrition and Sensory Analytics</td>
<td>5</td>
</tr>
<tr>
<td>Pastry Menu Creation and Cost Control</td>
<td>5</td>
</tr>
<tr>
<td>Industry Attachment</td>
<td>8</td>
</tr>
<tr>
<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
<td></td>
</tr>
<tr>
<td>Heritage Pastry</td>
<td>2</td>
</tr>
<tr>
<td><strong>ELECTIVES (GENERAL)</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to pages 300-301</td>
<td></td>
</tr>
<tr>
<td><strong>LIFE SKILLS MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to page 304</td>
<td></td>
</tr>
</tbody>
</table>

Refer to pages 300-301

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Advanced Pastry and Baking
On completion of the module, students should be able to apply advanced pastry and baking techniques to produce artisan and decorative breads, yeast-raised pastry products and entremets.

Advanced Decorations, Confectionery and Contemporary Desserts
On completion of the module, students should be able to apply advanced pastry and baking techniques to produce chocolate and sugar showpieces, confectionery products and contemporary-plated desserts.

Nutrition and Sensory Analytics
On completion of the module, students should be able to apply the principles of food nutrition to analyse the nutritional value and calorie content of the pastry menu items and provide healthy pastry product choices. They should also be able to apply the principles of sensory analytics to evaluate the composition of pastry and baking products in terms of its appearance, taste and texture.

Pastry Menu Creation and Cost Control
On completion of the module, students should be able to apply principles of pastry menu creation and cost control to design, develop, produce and market a range of suitable pastry products in a restaurant/café set-up.

Industry Attachment
Students will go on a 6-month industry attachment at a pastry outlet or pastry kitchen of a restaurant/hotel to gain hands-on practical training in a real-work environment.

Electives (Course Specific)

Heritage Pastry
On completion of the module, students should be able to prepare a range of heritage pastries.

Electives (General)
As reflected on pages 300-301.

Life Skills Modules
As reflected on page 304.
NITEC IN ASIAN CULINARY ARTS

COURSE SYNOPSIS

Students would be trained in an Asian kitchen (non-Halal) to prepare raw ingredients, cook and serve a specified range of Asian cuisines according to the requirements of the menu, recipes and guests.

On completion of the course, students should be able to

- Prepare for operations.
- Check stores.
- Store food.
- Prepare ingredients for cooking.
- Prepare a range of Asian stocks, sauces and soups.
- Cook a specified range of Asian dishes using basic dry and moist heat cooking methods.
- Prepare a range of Asian appetizers, snacks and desserts.

JOB OPPORTUNITIES

Nitec in Asian Culinary Arts graduates are employed as Cooks in restaurants and food and beverage outlets in hotels. There are opportunities for career advancement to supervisory positions and beyond. A Cook with work experience and good performance may be promoted to supervisory positions such as Demi Chef or Chef De Partie.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
<td>46</td>
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<tr>
<td>Life Skills Modules</td>
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<tr>
<td>Elective Modules</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>61</strong></td>
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</tbody>
</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.

COURSE STRUCTURE

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
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</tr>
<tr>
<td>Introduction to Kitchen Practice</td>
<td>5</td>
</tr>
<tr>
<td>Asian Stocks, Sauces and Soups</td>
<td>5</td>
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<tr>
<td>Asian Main Dishes</td>
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<tr>
<td>Asian Accompaniments and Side Dishes</td>
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</tr>
<tr>
<td>Asian Appetizers, Snacks and Basic Desserts</td>
<td>5</td>
</tr>
<tr>
<td>Kitchen Practicum</td>
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<tr>
<td>Interpersonal Skills for Hospitality Professionals</td>
<td>5</td>
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<tr>
<td>Industry Attachment</td>
<td>8</td>
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<tr>
<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
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</tr>
<tr>
<td>Heritage Cuisine</td>
<td>3</td>
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<tr>
<td><strong>ELECTIVES (INTER-DISCIPLINARY)</strong></td>
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</tr>
<tr>
<td>Recipe Planning and Costing</td>
<td>3</td>
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<tr>
<td>Food and Beverage Event Coordination</td>
<td>3</td>
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<tr>
<td>Fundamentals of Wine</td>
<td>3</td>
</tr>
<tr>
<td>Fundamentals of Barista Art</td>
<td>3</td>
</tr>
<tr>
<td>Fundamentals of Hawker Entrepreneurship</td>
<td>3</td>
</tr>
<tr>
<td>Fundamentals of Western Cuisine</td>
<td>3</td>
</tr>
<tr>
<td>Fundamentals of Pastry &amp; Baking</td>
<td>3</td>
</tr>
<tr>
<td>Hospitality Event Operations</td>
<td>3</td>
</tr>
<tr>
<td>Introduction to Hospitality Law and Security</td>
<td>3</td>
</tr>
<tr>
<td>Data Analytics for Hospitality</td>
<td>3</td>
</tr>
<tr>
<td><strong>ELECTIVES (GENERAL)</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to pages 302-304</td>
<td></td>
</tr>
</tbody>
</table>

LIFE SKILLS MODULES

Refer to page 304


**MODULE OBJECTIVES**

**Core Modules**

**Introduction to Kitchen Practice**
On completion of the module, students should be able to clean and set up the work area, store perishables, frozen, preserved and cooked food as well as attend to common injuries, fire and emergencies in the kitchen.

**Asian Stocks, Sauces and Soups**
On completion of the module, students should be able to prepare and cook a specified range of Asian stocks, sauces and soups.

**Asian Main Dishes**
On completion of the module, students should be able to prepare and cook a specified range of meat, poultry, fish and seafood Asian dishes.

**Asian Accompaniments and Side Dishes**
On completion of the module, students should be able to prepare and cook a specified range of vegetables, eggs, tofu, rice and noodle dishes and prepare garnishes.

**Asian Appetizers, Snacks and Basic Desserts**
On completion of the module, students should be able to prepare and cook a specified range of Asian appetizers, local snacks, fruits and basic desserts.

**Kitchen Practicum**
On completion of the module, students should be able to consolidate their skills and knowledge acquired through additional hands-on practice in the kitchen before they go for industry attachment.

**Interpersonal Skills for Hospitality Professionals**
On completion of the module, students should be able to handle communications required at the workplace at a functional level. They will be able to apply communicative skills (listening, speaking, reading and writing) in the workplace, in social and cross-cultural settings. Students will also be able to cultivate customer rapport, manage customer needs and expectations and perform service recovery.

**Industry Attachment**
Students will go on a 6-month industry attachment at a restaurant/F&B outlet to gain hands-on practical training in a real work environment.

**Electives (Course Specific)**

**Heritage Cuisine**
On completion of the module, students should be able to prepare and cook heritage dishes and be cognizant of Singapore’s food heritage thereby preserving the knowledge, trade secret and age-old recipes for the new generation of young culinary entrepreneurs.

**Electives (Inter-disciplinary)**

**Recipe Planning and Costing**
On completion of the module, students should be able to plan a menu, calculate recipe costs and prepare budget.

**Food and Beverage Event Coordination**
On completion of the module, students should be able to plan and coordinate the arrangements for a theme event.

**Fundamentals of Wine**
On completion of the module, students should be able to present and serve wine as well as recommend food and wine pairings.

**Fundamentals of Barista Art**
On completion of the module, students should be able to organise barista workstation, grind coffee beans, prepare common coffee beverages and close barista workstation.

**Fundamentals of Hawker Entrepreneurship**
On completion of the module, students should be able to set up hawker stall as well as prepare ingredients, spice mix and a range of hawker dishes according to specified recipes.

**Fundamentals of Western Cuisine**
On completion of the module, students should be able to demonstrate basic knife skills, prepare basic stocks, basic sauces, clear soup (consommé) and a range of main dishes according to specified recipes.

**Fundamentals of Pastry & Baking**
On completion of the module, students should be able to prepare a range of sweet pastry, choux pastry, cookies, basic cakes as well as mousse cakes according to specified recipes.
Hospitality Event Operations
On completion of this module, students should be able to prepare an event proposal, organise and assist in running an event. They should also be able to work with various departments to coordinate the logistics required and follow-up on post-event activities.

Introduction to Hospitality Law and Security
On completion of this module, students should be able to identify the local laws and regulations governing the hospitality industry and be cognizant of the legal impact of their actions that may affect them, the guests and the hotel when serving guests.

Data Analytics for Hospitality
On completion of this module, students should be able to identify a business needs, collect, analyse and interpret data using appropriate tools and techniques as well as generate charts and reports to make informed decisions.

Electives (General)
As reflected on pages 302-304.

Life Skills Modules
As reflected on page 304.
**NITEC IN HOSPITALITY OPERATIONS**

**COURSE SYNOPSIS**

Students would be trained to carry out the operations in an F&B outlet, monitor the delivery of food and service during meal periods to ensure that guests have a pleasant dining experience. Students would get to serve a wide range of meat (such as poultry, pork, beef, fish and seafood), alcoholic and non-alcoholic beverages.

On completion of the course, students should be able to

- Check the cleanliness and set up of dining areas.
- Perform hosting functions, take and serve food and beverage orders.
- Prepare alcoholic and non-alcoholic beverages.
- Handle room service orders.
- Supervise arrangements of function room for special events.

**JOB OPPORTUNITIES**

*Nitec* in Hospitality Operations graduates are employed by food and beverage outlets. Some of the job titles held by graduates include F&B Captain, Bartender and Barista.

**CERTIFICATION**

Credits required for certification:

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
<td>48</td>
</tr>
<tr>
<td>Life Skills Modules</td>
<td>9</td>
</tr>
<tr>
<td>Elective Modules</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>63</strong></td>
</tr>
</tbody>
</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
**MODULE OBJECTIVES**

**Core Modules**

**Essentials of Food and Beverage Operations**
On completion of the module, students should be able to perform F&B pre-service activities such as fold napkins, clean and polish service equipment, replenish F&B supplies, set up dining tables, check reservations, hosting, take and serve orders, change table settings and clear table at the end of the service.

**Beverage and Wine Service**
On completion of the module, students should be able to prepare and serve alcoholic and non-alcoholic beverages based on a list of mocktails, 26 international cocktails and wine.

**Barista Skills**
On completion of the module, students should be able to roast and grind coffee beans, and prepare and serve common coffee, tea and other hot beverages.

**Integrated Hospitality Operations**
On completion of the module, students should be able to process payment, conduct stock check, handle room service orders and set up F&B display showcase.

**Food Appreciation**
On completion of the module, students should be able to provide guests with information such as ingredients and cooking methods of menu items. They should also be able to recommend food items to guests with special food requirements.

**Restaurant Operations**
On completion of the module, students should be able to carry out a range of food and beverage service operations by taking on different job roles in various F&B training outlets.

**Hospitality Facility Maintenance**
On completion of the module, students should be able to carry out the correct maintenance methods on various surfaces in the restaurant. They should also be able to assist in implementing pest control measures, workplace safety measures and sustainability practices.

**Interpersonal Skills for Hospitality Professionals**
On completion of the module, students should be able to handle communications required at the workplace at a functional level. They will be able to apply communicative skills (listening, speaking, reading and writing) in the workplace, in social and cross-cultural settings. Students will also be able to cultivate customer rapport, manage customer needs and expectations and perform service recovery.

**Industry Attachment**
Students will go on a 6-month industry attachment at a Food and Beverage outlet to gain hands-on practical training in a real work environment.

**Electives (Course Specific)**

**Event Operations**
On completion of the module, students should be able to organise and assist in running an event. They should also be able to work with various departments to coordinate the logistics required and follow-up on post-event activities.

**Introduction to Hospitality Guest Services**
On completion of the module, students should be able to provide various guest services in the hospitality industry, specifically concierge and bell services.

**Electives (Inter-disciplinary)**

**Fundamentals of Wine**
On completion of this module, students should be able to present and serve wine as well as recommend food and wine pairings.

**Fundamentals of Barista Art**
On completion of the module, students should be able to organise barista workstation, grind coffee beans, prepare common coffee beverages and close barista workstation.

**Fundamentals of Hawker Entrepreneurship**
On completion of the module, students should be able to set up hawker stall as well as prepare ingredients, spice mix and a range of hawker dishes according to specified recipes.

**Fundamentals of Western Cuisine**
On completion of the module, students should be able to demonstrate basic knife skills, prepare basic stocks, basic sauces, clear soup (consommé) and a range of main dishes according to specified recipes.
Fundamentals of Pastry & Baking
On completion of the module, students should be able to prepare a range of sweet pastry, choux pastry, cookies, basic cakes as well as mousse cakes according to specified recipes.

Hospitality Event Operations
On completion of this module, students should be able to prepare an event proposal, organise and assist in running an event. They should also be able to work with various departments to coordinate the logistics required and follow-up on post-event activities.

Introduction to Hospitality Law and Security
On completion of this module, students should be able to identify the local laws and regulations governing the hospitality industry and be cognizant of the legal impact of their actions that may affect them, the guests and the hotel when serving guests.

Data Analytics for Hospitality
On completion of this module, students should be able to identify a business needs, collect, analyse and interpret data using appropriate tools and techniques as well as generate charts and reports to make informed decisions.

Electives (General)
As reflected on pages 302-304.

Life Skills Modules
As reflected on page 304.
NITEC IN PASTRY & BAKING

COURSE SYNOPSIS

Students would be trained with the skills and knowledge to produce a range of breads, pastries, cakes and other dessert specialties in accordance with given recipes using appropriate method and equipment.

On completion of the course, students should be able to
- Prepare mise en place for baking and pastry.
- Process basic baking ingredients.
- Prepare a range of bread and pastry products.
- Prepare a range of sweet and savoury pastry fillings.
- Prepare a range of cakes and carry out cake decorations.
- Prepare a range of hot, cold and frozen desserts.
- Prepare petit fours, chocolates and pralines.
- Evaluate and store finished products.
- Present finished products for display.

JOB OPPORTUNITIES

Nitec in Pastry & Baking graduates are employed as Assistant Pastry Cooks/Assistant Bakers in hotels, restaurants and bakeries. There are opportunities for career advancement to supervisory positions and beyond. An Assistant Pastry Cook with work experience and good performance may be promoted to positions, such as Pastry Cook or Baker.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Core Modules</th>
<th>46</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Skills Modules</td>
<td>9</td>
</tr>
<tr>
<td>Elective Modules</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>61</td>
</tr>
</tbody>
</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

Introduction to Baking Science
On completion of the module, students should be able to clean and set up work area, maintain inventory as well as process and store basic baking ingredients according to food hygiene and safety regulations.

Pastry Basics
On completion of the module, students should be able to prepare specified range of different types of pastry products. As well as prepare, evaluate and store pastry fillings.

Cake Mixing and Baking
On completion of the module, students should be able to prepare, decorate and display different types of cakes.

Bread Production
On completion of the module, students should be able to prepare different types of bread products.

Desserts and Petit Fours
On completion of the module, students should be able to prepare a specified range of desserts and petit fours, and assemble and evaluate desserts.

Decorative Work
On completion of the module, students should be able perform decorative work using principles of good cake design and hands-on display techniques.

Chocolates and Pralines
On completion of the module, students should be able to temper couverture, produce and finish chocolate decorations and pralines.

Interpersonal Skills for Hospitality Professionals
On completion of the module, students should be able to handle communications required at the workplace at a functional level. They will be able to apply communicative skills (listening, speaking, reading and writing) in the workplace, in social and cross-cultural settings. Students will also be able to cultivate customer rapport, manage customer needs and expectations and perform service recovery.

Industry Attachment
Students will go on a 6-month industry attachment at a pastry outlet or pastry kitchen of restaurants and hotels to gain hands-on practical training in a real work environment.

Electives (Course Specific)

Pastry Menu Planning and Recipe Costing
On completion of the module, students should be able to plan menu, calculate recipe costs and prepare budget.

Electives (Inter-disciplinary)

Food and Beverage Event Coordination
On completion of the module, students should be able to plan and coordinate the arrangements for a theme event.

Fundamentals of Wine
On completion of this module, students should be able to present and serve wine as well as recommend food and wine pairings.

Fundamentals of Barista Art
On completion of the module, students should be able to organise barista workstation, grind coffee beans, prepare common coffee beverages and close barista workstation.

Fundamentals of Hawker Entrepreneurship
On completion of the module, students should be able to set up hawker stall as well as prepare ingredients, spice mix and a range of hawker dishes according to specified recipes.

Fundamentals of Western Cuisine
On completion of the module, students should be able to demonstrate basic knife skills, prepare basic stocks, basic sauces, clear soup (consommé) and a range of main dishes according to specified recipes.

Fundamentals of Pastry & Baking
On completion of the module, students should be able to prepare a range of sweet pastry, choux pastry, cookies, basic cakes as well as mousse cakes according to specified recipes.

Hospitality Event Operations
On completion of this module, students should be able to prepare an event proposal, organise and assist in running an event. They should also be able to work with various departments to coordinate the logistics required and follow-up on post-event activities.
Introduction to Hospitality Law and Security
On completion of this module, students should be able to identify the local laws and regulations governing the hospitality industry and be cognizant of the legal impact of their actions that may affect them, the guests and the hotel when serving guests.

Data Analytics for Hospitality
On completion of this module, students should be able to identify a business needs, collect, analyse and interpret data using appropriate tools and techniques as well as generate charts and reports to make informed decisions.

Electives (General)
As reflected on pages 302-304.

Life Skills Modules
As reflected on page 304.
NITEC IN WESTERN CULINARY ARTS

COURSE SYNOPSIS

Students would be trained in a Western kitchen (non-halal) to prepare raw ingredients, cook and serve a specified range of Western cuisines according to the requirements of the menu, recipes and guests.

On completion of the course, students should be able to

- Prepare for operations.
- Check stores.
- Store ingredients.
- Prepare a range of Western stocks, sauces and soups.
- Cook a specified range of Western dishes using basic dry and moist heat cooking methods.
- Prepare a range of Western appetizers, snacks and desserts.

JOB OPPORTUNITIES

Nitec in Western Culinary Arts graduates are employed as Cooks in restaurants and food & beverage outlets. There are opportunities for career advancement to supervisory positions and beyond. A Cook with work experience and good performance may be promoted to supervisory positions, such as Demi Chef or Chef De Partie.

CERTIFICATION

Credits required for certification:

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Modules</td>
<td>42</td>
</tr>
<tr>
<td>Life Skills Modules</td>
<td>9</td>
</tr>
<tr>
<td>Elective Modules</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>57</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CORE MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Introduction to Kitchen Practice</td>
<td>5</td>
</tr>
<tr>
<td>Stocks, Sauces and Soups</td>
<td>4</td>
</tr>
<tr>
<td>Main Course Preparation I</td>
<td>4</td>
</tr>
<tr>
<td>Main Course Preparation II</td>
<td>4</td>
</tr>
<tr>
<td>Cold Food and Basic Desserts</td>
<td>4</td>
</tr>
<tr>
<td>Kitchen Operations</td>
<td>8</td>
</tr>
<tr>
<td>Interpersonal Skills for Hospitality Professinals</td>
<td>5</td>
</tr>
<tr>
<td>Industry Attachment</td>
<td>8</td>
</tr>
<tr>
<td><strong>ELECTIVES (COURSE SPECIFIC)</strong></td>
<td></td>
</tr>
<tr>
<td>Recipe Planning and Costing</td>
<td>3</td>
</tr>
<tr>
<td>Food and Beverage Event Coordination</td>
<td>3</td>
</tr>
<tr>
<td><strong>ELECTIVES (INTER-DISCIPLINARY)</strong></td>
<td></td>
</tr>
<tr>
<td>Fundamentals of Wine</td>
<td>3</td>
</tr>
<tr>
<td>Fundamentals of Barista Art</td>
<td>3</td>
</tr>
<tr>
<td>Fundamentals of Hawker Entrepreneurship</td>
<td>3</td>
</tr>
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<td>Fundamentals of Western Cuisine</td>
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<tr>
<td>Fundamentals of Pastry &amp; Baking</td>
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<tr>
<td>Hospitality Event Operations</td>
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<tr>
<td>Data Analytics for Hospitality</td>
<td>3</td>
</tr>
<tr>
<td><strong>ELECTIVES (GENERAL)</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to pages 302-304</td>
<td></td>
</tr>
<tr>
<td><strong>LIFE SKILLS MODULES</strong></td>
<td></td>
</tr>
<tr>
<td>Refer to page 304</td>
<td></td>
</tr>
</tbody>
</table>

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.
MODULE OBJECTIVES

Core Modules

**Introduction to Kitchen Practice**
On completion of the module, students should be able to clean and set up the work area, store perishables, frozen, preserved and cooked foods as well as to attend to common injuries, fire and emergencies in the kitchen.

**Stocks, Sauces and Soups**
On completion of the module, students should be able to prepare a specified range of Western stocks, sauces and soups.

**Main Course Preparation I**
On completion of the module, students should be able to prepare and cook a specified range of main dishes consisting of eggs, cured meat, fish, seafood, vegetables and potatoes.

**Main Course Preparation II**
On completion of the module, students should be able to prepare and cook a specified range of main dishes consisting of pasta, poultry, meat and grains.

**Cold Food and Basic Desserts**
On completion of the module, students should be able to prepare and cook a specified range of salads, cold appetizers, pastry products and hot/cold desserts.

**Kitchen Operations**
On completion of the module, students should be able to consolidate their skills and knowledge, acquired through additional hands-on practice in the kitchen, before they go for industry attachment.

**Interpersonal Skills for Hospitality Professionals**
On completion of the module, students should be able to handle communications required at the workplace at a functional level. They will be able to apply communicative skills (listening, speaking, reading and writing) in the workplace, in social and cross-cultural settings. Students will also be able to cultivate customer rapport, manage customer needs and expectations and perform service recovery.

**Industry Attachment**
Students will go on a 6-month industry attachment at a restaurant/F&B outlet to gain hands-on practical training in a real work environment.

Electives (Course Specific)

**Recipe Planning and Costing**
On completion of the module, students should be able to plan a menu, calculate recipe costs and prepare budget.

**Food and Beverage Event Coordination**
On completion of the module, students should be able to plan and coordinate the arrangements for a theme event.

Electives (Inter-disciplinary)

**Fundamentals of Wine**
On completion of this module, students should be able to present and serve wine as well as recommend food and wine pairings.

**Fundamentals of Barista Art**
On completion of the module, students should be able to organise barista workstation, grind coffee beans, prepare common coffee beverages and close barista workstation.

**Fundamentals of Hawker Entrepreneurship**
On completion of the module, students should be able to set up hawker stall as well as prepare ingredients, spice mix and a range of hawker dishes according to specified recipes.

**Fundamentals of Western Cuisine**
On completion of the module, students should be able to demonstrate basic knife skills, prepare basic stocks, basic sauces, clear soup (consommé) and a range of main dishes according to specified recipes.

**Fundamentals of Pastry & Baking**
On completion of the module, students should be able to prepare a range of sweet pastry, choux pastry, cookies, basic cakes as well as mousse cakes according to specified recipes.

**Hospitality Event Operations**
On completion of this module, students should be able to prepare an event proposal, organise and assist in running an event. They should also be able to work with various departments to coordinate the logistics required and follow-up on post-event activities.
Introduction to Hospitality Law and Security
On completion of this module, students should be able to identify the local laws and regulations governing the hospitality industry and be cognizant of the legal impact of their actions that may affect them, the guests and the hotel when serving guests.

Data Analytics for Hospitality
On completion of this module, students should be able to identify a business needs, collect, analyse and interpret data using appropriate tools and techniques as well as generate charts and reports to make informed decisions.

Electives (General)
As reflected on pages 302-304.

Life Skills Modules
As reflected on page 304.
ELECTIVES (GENERAL)

Training is conducted on a modular basis. Students have to complete core, specialisation, life skills modules and a number of elective modules to obtain the necessary credits for certification. Students who wish to progress to higher level of learning should take the Mathematics electives. The General Electives and Life Skills Modules are given in the Tables below:

General Electives for Higher Nitec Courses

<table>
<thead>
<tr>
<th>MODULES</th>
<th>CREDIT UNITS</th>
<th>MODULE OBJECTIVES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquaculture Techniques</td>
<td>2</td>
<td>On completion of the module, students should be able to perform basic technical skills required in aquaculture, such as setting up filtration unit, packaging, feeding, water testing and treatment of common fish diseases.</td>
</tr>
<tr>
<td>Bridging Mathematics 1</td>
<td>3</td>
<td>On completion of the module, students should be able to apply knowledge of mathematics to solve engineering related problems involving the use of algebra, graphs, exponents, trigonometry, simultaneous and quadratic equations.</td>
</tr>
<tr>
<td>Bridging Mathematics 2</td>
<td>3</td>
<td>On completion of the module, students should be able to apply knowledge of mathematics to solve engineering related problems involving the use of indices, surds, trigonometric functions, exponential and logarithmic functions, matrices, differential and integration.</td>
</tr>
<tr>
<td>Calculus (Integration)</td>
<td>2</td>
<td>On completion of the module, students should be able to apply knowledge of mathematics to solve engineering related problems involving the use of integration.</td>
</tr>
<tr>
<td>Cyber Wellness</td>
<td>2</td>
<td>On completion of the module, students should be able to identify dangers and risks in using the internet and to protect themselves from dangers in cyberspace.</td>
</tr>
<tr>
<td>Dance Techniques</td>
<td>2</td>
<td>On completion of the module, students should be able to perform movement phrases/Sequences of dance choreographies.</td>
</tr>
<tr>
<td>Electrotechnology</td>
<td>2</td>
<td>On completion of the module, students will be trained in the basic electrical machines, which include magnetism, transformers, AC single-phase circuits, single phase induction motors and DC motors.</td>
</tr>
<tr>
<td>Fundamentals of Acting</td>
<td>2</td>
<td>On completion of the module, students should be able to apply acting skills to stage and perform a short production/presentation.</td>
</tr>
<tr>
<td>Fundamentals of Industrial Automation</td>
<td>2</td>
<td>On completion of the module, students should be able to interpret, design, construct, test and troubleshoot electro-mechanical control systems which include common input/output devices, electromechanical relay and timer relay.</td>
</tr>
<tr>
<td>HSE Management (Building)</td>
<td>2</td>
<td>On completion of the module, students are trained to comprehend workplace HSE regulations and framework; identify environmental and safety hazards; implement appropriate risk controls; and competent in Working-At-Heights.</td>
</tr>
<tr>
<td>HSE Management (Mechanical)</td>
<td>2</td>
<td>On completion of the module, students are trained to comprehend workplace HSE regulations and framework; identify environmental and safety hazards and implement appropriate risk controls.</td>
</tr>
</tbody>
</table>
## COMMON ELECTIVES (GENERAL)

<table>
<thead>
<tr>
<th>MODULES</th>
<th>CREDIT UNITS</th>
<th>MODULE OBJECTIVES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interfacing and Programming with IoT Computer</td>
<td>2</td>
<td>On completion of the module, students are trained to set up a working environment for an IoT computer, administer its operating system and deploy high level language programs to interface the IoT computer to the external devices.</td>
</tr>
<tr>
<td>Introduction to Facial Recognition with Machine Learning</td>
<td>2</td>
<td>On completion of the module, students should be able to appreciate machine learning concepts and configure a facial recognition system using a Single Board Computer (SBC).</td>
</tr>
<tr>
<td>Mobile Video for Marketing</td>
<td>2</td>
<td>On completion of the module, students should be able to record and edit video on mobile phone with proper techniques and using social media to market their video.</td>
</tr>
<tr>
<td>New Media Storytelling</td>
<td>2</td>
<td>On completion of the module, students should be equipped with the knowledge and skills to develop a compelling visual narrative. Using visual media such as photography, graphics and videos, they are able to share ideas in a story through media platforms to engage targeted audience.</td>
</tr>
<tr>
<td>Overseas Institution Elective</td>
<td>3</td>
<td>On completion of the module, students should be able to develop self-confidence and independence as well as appreciate the cross-cultural differences in a dynamic global environment when they undertake training related to their course of study in a foreign country.</td>
</tr>
<tr>
<td>Overseas Work Attachment</td>
<td>3</td>
<td>On completion of the module, students should be able to develop self-confidence and independence as well as appreciate the cross-cultural differences in a dynamic global environment when they undertake work related to their course of study in a foreign country.</td>
</tr>
<tr>
<td>Photography Essentials</td>
<td>2</td>
<td>On completion of the module, students should be able to apply the fundamentals of photography skill learnt e.g. composition technique, photography principles and camera terminologies which will help in their field of study.</td>
</tr>
<tr>
<td>Robotics Essentials</td>
<td>2</td>
<td>On completion of the module, students should be able to integrate and maintain a robotics system.</td>
</tr>
<tr>
<td>Singing Techniques</td>
<td>2</td>
<td>On completion of the module, students should be able to sing using proper techniques.</td>
</tr>
<tr>
<td>Smart Living Solutions</td>
<td>2</td>
<td>On completion of the module, students should be able to set up and configure an automated home which comprises of sensors, utilities measurement devices, actuators, IoT / media gateway and interactive mobile devices.</td>
</tr>
<tr>
<td>Technology Entrepreneurship</td>
<td>4</td>
<td>On completion of the module, students should be able to conceptualise their ideas into technological innovative solutions, and create business plan for new technology venture.</td>
</tr>
<tr>
<td>Visual Basic Programming</td>
<td>2</td>
<td>On completion of the module, students should be able to apply the concepts of computer programming and write simple programs using Visual Basic programming language in windows environment.</td>
</tr>
<tr>
<td>Wireless Digital Locking Technology</td>
<td>2</td>
<td>On completion of the module, students should be able to install, maintain and commission wireless digital locking system.</td>
</tr>
<tr>
<td>MODULES</td>
<td>CREDIT UNITS</td>
<td>MODULE OBJECTIVES</td>
</tr>
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<td>------------------------------------------</td>
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</tr>
<tr>
<td>Aquaculture Techniques</td>
<td>2</td>
<td>On completion of the module, students should be able to perform basic technical skills required in aquaculture, such as setting up filtration unit, packaging, feeding, water testing and treatment of common fish diseases.</td>
</tr>
<tr>
<td>Basic Aerobics Instructions</td>
<td>3</td>
<td>On completion of the module, students should have a working knowledge of the objectives of group exercise, the components of fitness; class formatting, music guidelines, cueing and choreography techniques. Students should be able to conduct basic aerobics group exercise sessions.</td>
</tr>
<tr>
<td>Basic Python Programming</td>
<td>2</td>
<td>On completion of the module, students should be able to perform scripting using Python for solving problems.</td>
</tr>
<tr>
<td>Bridging Mathematics 1</td>
<td>3</td>
<td>On completion of the module, students should be able to apply knowledge of mathematics to solve engineering related problems involving the use of algebra, graphs, exponents, trigonometry, simultaneous and quadratic equations.</td>
</tr>
<tr>
<td>Cyber Wellness</td>
<td>2</td>
<td>On completion of the module, students should be able to identify dangers and risks in using the internet and to protect themselves from dangers in cyberspace.</td>
</tr>
<tr>
<td>Electrotechnology</td>
<td>2</td>
<td>On completion of the module, students will be trained in the basic electrical machines, which include magnetism, transformers, AC single-phase circuits, single phase induction motors and DC motors.</td>
</tr>
<tr>
<td>Fundamentals of Industrial Automation</td>
<td>2</td>
<td>On completion of the module, students should be able to interpret, design, construct, test and troubleshoot electro-mechanical control systems which include common input/output devices, electromechanical relay and timer relay.</td>
</tr>
<tr>
<td>Group Fitness Exercise</td>
<td>3</td>
<td>On completion of the module, students should be able to understand the objectives of group exercise and the types of classes in the industry, understand the usage of cueing and choreography techniques, music and equipment in a group exercise class, design and teach a basic level group exercise class and promote health and wellness to class participants.</td>
</tr>
<tr>
<td>HSE Management (Building)</td>
<td>2</td>
<td>On completion of the module, students are trained to comprehend workplace HSE regulations and framework; identify environmental and safety hazards; implement appropriate risk controls; and competent in Working-At-Heights.</td>
</tr>
<tr>
<td>HSE Management (Mechanical)</td>
<td>2</td>
<td>On completion of the module, students are trained to comprehend workplace HSE regulations and framework; identify environmental and safety hazards and implement appropriate risk controls.</td>
</tr>
<tr>
<td>Interfacing and Programming with IoT Computer</td>
<td>2</td>
<td>On completion of the module, students are trained to set up a working environment for an IoT computer, administer its operating system and deploy high level language programs to interface the IoT computer to the external devices.</td>
</tr>
<tr>
<td>Introduction to Facial Recognition with Machine Learning</td>
<td>2</td>
<td>On completion of the module, students should be able to appreciate machine learning concepts and configure a facial recognition system using a Single Board Computer (SBC).</td>
</tr>
<tr>
<td>MODULES</td>
<td>CREDIT UNITS</td>
<td>MODULE OBJECTIVES</td>
</tr>
<tr>
<td>----------------------------------</td>
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</tr>
<tr>
<td>Laser Show Production</td>
<td>2</td>
<td>On completion of the module, students should be able to apply the knowledge of laser software programme in producing an entertainment laser show.</td>
</tr>
<tr>
<td>Mobile Video for Marketing</td>
<td>2</td>
<td>On completion of the module, students should be able to record and edit video on mobile phone with proper techniques and using social media to market their video.</td>
</tr>
<tr>
<td>Nutrition and Health</td>
<td>2</td>
<td>On completion of the module, students should be able to identify the common public health concerns in Singapore, various nutrients found in foods and their functions, as well as provide suggestions for healthier food choices.</td>
</tr>
<tr>
<td>Overseas Institution Elective</td>
<td>3</td>
<td>On completion of the module, students should be able to develop self-confidence and independence as well as appreciate the cross-cultural differences in a dynamic global environment when they undertake training related to their course of study in a foreign country.</td>
</tr>
<tr>
<td>Overseas Work Attachment</td>
<td>3</td>
<td>On completion of the module, students should be able to develop self-confidence and independence as well as appreciate the cross-cultural differences in a dynamic global environment when they undertake work related to their course of study in a foreign country.</td>
</tr>
<tr>
<td>Photography Essentials</td>
<td>2</td>
<td>On completion of the module, students should be able to apply the fundamentals of photography skill learnt e.g. composition technique, photography principles and camera terminologies which will help in their field of study.</td>
</tr>
<tr>
<td>Robotics Essentials</td>
<td>2</td>
<td>On completion of the module, students should be able to integrate and maintain a robotics system.</td>
</tr>
<tr>
<td>Safety Audit and Risk Assessment</td>
<td>2</td>
<td>On completion of the module, students should be able to identify potential hazard at workplace and implement risk control measures to ensure a safe work environment.</td>
</tr>
<tr>
<td>Smart Living Solutions</td>
<td>2</td>
<td>On completion of the module, students should be able to set up and configure an automated home which comprises of sensors, utilities measurement devices, actuators, IoT / media gateway and interactive mobile devices.</td>
</tr>
<tr>
<td>Technical Mathematics (EC)</td>
<td>3</td>
<td>On completion of the module, students should be able to apply knowledge of mathematics to solve engineering related problems involving the use of basic arithmetic, algebra, indices, graphs and trigonometry.</td>
</tr>
<tr>
<td>Technical Mathematics (PE)</td>
<td>3</td>
<td>On completion of the module, students should be able to understand mathematical principles and to apply knowledge of engineering mathematics to solve problems in a clear and logical way.</td>
</tr>
<tr>
<td>Technology Entrepreneurship</td>
<td>4</td>
<td>On completion of the module, students should be able to conceptualise their ideas into technological innovative solutions, and create business plan for new technology venture.</td>
</tr>
<tr>
<td>Theory and Practice of Coaching</td>
<td>3</td>
<td>On completion of the module, students should be able to perform the role of an assistant coach. This module provides students with the knowledge of the basis of sound coaching practice for beginner coaches. It covers the fundamental elements of coaching, the roles of the coach, growth &amp; development of athletes, safety issues, skills analysis and skills development.</td>
</tr>
<tr>
<td>MODULES</td>
<td>CREDIT UNITS</td>
<td>MODULE OBJECTIVES</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>--------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Cross-cultural Understanding</td>
<td>3</td>
<td>On completion of the module, students should be able to establish and maintain cross-cultural relationships, as well as organise and participate in multicultural networking activities.</td>
</tr>
<tr>
<td>Visual Basic Programming</td>
<td>2</td>
<td>On completion of the module, students should be able to apply the concepts of computer programming and write simple programs using Visual Basic programming language in windows environment.</td>
</tr>
<tr>
<td>Wireless Digital Locking Technology</td>
<td>2</td>
<td>On completion of the module, students should be able to install, maintain and commission wireless digital locking system.</td>
</tr>
<tr>
<td>Workplace First Aid and CPR</td>
<td>2</td>
<td>On completion of the module, students should be able to apply basic concepts and principles of first aid to render first aid treatment at the workplace and perform CPR during an emergency.</td>
</tr>
</tbody>
</table>

**Life Skills Modules (for Higher Nitec and Nitec Courses)**

<table>
<thead>
<tr>
<th>MODULES</th>
<th>CREDIT UNITS</th>
<th>MODULE OBJECTIVES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal and Professional Development I</td>
<td>2</td>
<td>On completion of the module, students would be equipped with the knowledge and skills to be effective individuals and team players in the social and workplace context.</td>
</tr>
<tr>
<td>Personal and Professional Development II</td>
<td>2</td>
<td>On completion of the module, students would be equipped with the knowledge and skills to prepare for challenges and opportunities at the future workplace.</td>
</tr>
<tr>
<td>Personal and Professional Development III</td>
<td>2</td>
<td>On completion of the module, students would be equipped with the knowledge and skills to develop discerning skills and be thinking individuals and team players, ready to embrace new and innovative endeavours, as well as to embrace lifelong learning.</td>
</tr>
<tr>
<td>LifeSkills Electives</td>
<td>2</td>
<td>On completion of the module, students would be provided with a range of enriching and functional topics, aimed to broaden and deepen their knowledge and skills for personal and professional development.</td>
</tr>
<tr>
<td>Sports and Wellness 1</td>
<td>1</td>
<td>On completion of the module, students should be able to acquire the skills and knowledge to maintain an active and healthy lifestyle. In addition, they will participate in a variety of sports and will grow to appreciate good sporting values such as excellence, teamwork and respect.</td>
</tr>
<tr>
<td>Sports and Wellness 2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Sports and Wellness 3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Sports and Wellness 4</td>
<td>1</td>
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</tr>
</tbody>
</table>
TRAINEESHIP SCHEME

General Information
The ITE Traineeship Scheme is an ‘earn-as-you-learn’ arrangement whereby a trainee is employed by a company to undergo a Traineeship course leading to national certification awarded by ITE. During the period of Traineeship, the trainee is considered an employee of the company and receives a monthly salary and enjoys benefits similar to other company employees. All course fees are fully paid by the sponsoring companies.

On-the-job training (OJT)
Unlike full-time training, trainees participating in the Traineeship Scheme get paid and enjoy work on actual jobs. The technical skills and knowledge learnt during off-the-job training will be applied here. A trained and qualified On-the-Job Training (OJT) trainer will instruct, guide and oversee the trainees’ work.

Off-the-job training (Off-JT)
Trainees also attend theory and practical lessons where they are taught the technical knowledge and skills related to their trade area. The off-the-job training may be conducted at an ITE College or an ITE Approved Training Centre (ATC). The off-the-job training component is conducted on a day-release (full-time 1 or 2 days a week) or block-release basis or a mix of these modes.

Application for a Traineeship Course
Every year, ITE conducts two Traineeship recruitment intake exercises for admission following the release of the GCE ‘N’ Level and GCE ‘O’ Level examination results in December and January respectively.

Application Procedure
Submit applications for Traineeship courses via the Internet or at the ITE Customer & Visitor Centre @ Ang Mo Kio.

View virtual mass briefing and attend pre-interview sessions with ITE Officers before attending interview with participating companies.

When applying, the following documents are required:
- Identity card (NRIC) or passport;
- Educational documents (i.e. results slip or certificates); and
- Report Book.

An applicant must be employed by a participating company in order to join a Traineeship course.

Course details such as their entry requirements, course objectives, training pattern, duration and starting salaries are given in Table 16.

Certification
The trainee is required to pass the prescribed subjects as well as complete at least 75 per cent of the tasks listed for the on-the-job training component satisfactorily and obtain a grade of ‘D’ or better. The trainee is expected to attend off-the-job training regularly and punctually. On successful completion of the Traineeship course, the trainee will be awarded the full-time equivalent Higher Nitec, Nitec or ITE Skills Certificate (ISC) depending on the course attended.
<table>
<thead>
<tr>
<th>Area / Course Title</th>
<th>Minimum Entry Requirements</th>
<th>Course Objective</th>
<th>Training Pattern</th>
<th>Duration (Years)</th>
<th>Indicative Average Starting Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AUTOMATION</strong></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td><em>Nitec in Mechatronics &amp; Robotics #</em></td>
<td>3 GCE 'N' Level passes (Grade A-D or Grade 1-5) in Mathematics or Science* and two other subjects OR 2 GCE 'O' Level Grades (Grade 1-8) in any two subjects</td>
<td>This course provides students with multi-disciplinary skills and knowledge in installing, setting up, operating, maintaining and servicing industrial automated production equipment and systems.</td>
<td>D/R</td>
<td>2</td>
<td>$1,100 - $1,400</td>
</tr>
</tbody>
</table>

| **AUTOMOTIVE**      |                            |                  |                  |                  |                                   |
| *Higher Nitec in Automotive Engineering #* | A relevant Nitec qualification | This course provides trainees with the skills and knowledge to perform a range of progressively responsible tasks involving the service, inspection, repair and diagnosis of systems for petrol, diesel, and alternative powered vehicles. Work ranges from inspection and service to mechanical and electrical systems analysis using diagnostic equipment and related software. | D/R | 2 | $1,400 - $1,600 |
### Table 16 – Traineeship Courses Available to GCE ‘N’ and GCE ‘O’ Level Holders

<table>
<thead>
<tr>
<th>Area / Course Title</th>
<th>Minimum Entry Requirements</th>
<th>Course Objective</th>
<th>Training Pattern</th>
<th>Duration (Years)</th>
<th>Indicative Average Starting Salary</th>
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</thead>
<tbody>
<tr>
<td><strong>AUTOMOTIVE</strong></td>
<td></td>
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</tr>
<tr>
<td>Nitec in Automotive Technology #</td>
<td>Completed GCE ‘N’ Level OR GCE ‘O’ Level</td>
<td>This course provides trainees with the skills and knowledge in troubleshooting, servicing, repairing and maintaining passenger and commercial vehicles. The trainee should be able to perform a range of tasks involving the servicing, inspection, repair and diagnosis of systems for petrol and diesel vehicles. The work includes inspection and servicing to mechanical and electrical systems analysis using diagnostic equipment.</td>
<td>D/R</td>
<td>2</td>
<td>$1,200 - $1,500</td>
</tr>
<tr>
<td>Nitec in Motorcycle Technology</td>
<td></td>
<td>This course provides trainees with the necessary skills and knowledge to perform general maintenance, troubleshooting, repair and overhaul faulty systems and components of a single cylinder motorcycle.</td>
<td>D/R</td>
<td>2</td>
<td>$1,200 - $1,300</td>
</tr>
<tr>
<td><strong>BUILDING SERVICES</strong></td>
<td></td>
<td>This course provides students with the skills and knowledge in servicing, maintaining, repairing and installing air-conditioning systems, plumbing and sanitary systems, firefighting and fire protection systems, electrical and emergency services, amenities, fittings and fixtures for commercial, institutional and residential buildings in accordance with the manufacturer and authority requirements to ensure optimum functioning of plant, equipment and systems.</td>
<td>D/R</td>
<td>2</td>
<td>$1,200 - $1,700</td>
</tr>
<tr>
<td>Area / Course Title</td>
<td>Minimum Entry Requirements</td>
<td>Course Objective</td>
<td>Training Pattern</td>
<td>Duration (Years)</td>
<td>Indicative Average Starting Salary</td>
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</tr>
<tr>
<td><strong>BUSINESS &amp; SERVICES</strong></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Higher Nitec in Service Management</td>
<td>3 GCE ‘O’ Level Grades (Grade 1-7) in English Language, (Grade 1-8) in Mathematics or Principles of Accounts and (Grade 1-7) in one other subject. To be eligible for selection, the applicant must have sat for Mathematics (Elementary or Additional) OR A relevant Nitec qualification</td>
<td>This course provides students with the skills and knowledge in providing customer service and support in contact centre functions such as managing inbound/outbound channels and customer relationship.</td>
<td>D/R</td>
<td>2</td>
<td>$1,300 - $1,400</td>
</tr>
<tr>
<td>Nitec in Business Services</td>
<td>3 GCE ‘N’ Level passes (Grade A-D or Grade 1-5) in English Language and two other subjects OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects</td>
<td>This programme provides students with the skills and knowledge to provide front line support and service for an organisation’s clients and customers.</td>
<td>D/R</td>
<td>2</td>
<td>$1,100 - $1,400</td>
</tr>
<tr>
<td>Nitec in Beauty &amp; Wellness</td>
<td>Completed GCE ‘N’ Level OR GCE ‘O’ Level</td>
<td>The trainee should be able to perform beauty treatments and promote products to clients that will enhance their overall aesthetic appearance.</td>
<td>D/R</td>
<td>2</td>
<td>$1,100 - $1,200</td>
</tr>
<tr>
<td>Nitec in Retail Services</td>
<td>3 GCE ‘N’ Level passes (Grade A-D or Grade 1-5) in English Language and two other subjects OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects</td>
<td>The trainee should be able to carry out the operations in an F&amp;B outlet, monitor the delivery of food and service during meal periods to ensure that guests have a pleasant dining experience.</td>
<td>D/R</td>
<td>2</td>
<td>$1,400 - $2,000</td>
</tr>
<tr>
<td><strong>HOSPITALITY</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Nitec in Hospitality Operations</td>
<td>3 GCE ‘N’ Level passes (Grade A-D or Grade 1-5) in English Language and two other subjects OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects</td>
<td>The trainee should be able to carry out the operations in an F&amp;B outlet, monitor the delivery of food and service during meal periods to ensure that guests have a pleasant dining experience.</td>
<td>D/R</td>
<td>2</td>
<td>$1,400 - $2,000</td>
</tr>
<tr>
<td>Area / Course Title</td>
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<tr>
<td><strong>HOSPITALITY</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Nitec in Asian Culinary Arts</em></td>
<td>Completed GCE ‘N’ Level OR GCE ‘O’ Level</td>
<td>The trainee should be able to prepare, cut, process and cook food items.</td>
<td>D/R</td>
<td>2</td>
<td>$1,400 - $1,500</td>
</tr>
<tr>
<td><strong>HAIRSTYLING</strong></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Nitec in Hair Fashion &amp; Design</em></td>
<td>Completed GCE ‘N’ Level OR GCE ‘O’ Level</td>
<td>The trainee should be able to use advanced techniques in perming and hair colouring, precision hair cutting, wig servicing and scalp treatments.</td>
<td>D/R</td>
<td>2</td>
<td>$1,100 - $1,200</td>
</tr>
<tr>
<td><strong>HEALTH CARE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Nitec in Community Care &amp; Social Services</em></td>
<td>3 GCE ‘N’ Level passes (Grade A-D or Grade 1-5) in Mathematics or Science* and two other subjects OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects AND 2 years relevant working experience is required. * Mobile Robotics and Smart Electrical Technology subjects can be used in lieu of Science for admission to the course</td>
<td>This course aims to provide students with skills and knowledge to provide care, rehabilitation and support to clients and residents in Nursing Homes, Community Hospitals, Community Rehabilitation Centres, Integrated Rehabilitation Centres, Day Care Centres and Senior Activity Centres. It will also provide students with the skills and knowledge to perform various administrative tasks including planning, organising and implementing community based activities and events.</td>
<td>Hybrid</td>
<td>2</td>
<td>$1,200 - $1,650</td>
</tr>
<tr>
<td><em>Nitec in Dental Technology</em></td>
<td>3 GCE ‘N’ Level passes (Grade A-D or Grade 1-5) in Mathematics and two other subjects OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects</td>
<td>The trainee should be able to work with the dental surgeon to provide dental prostheses services to patients. The highly specialised training will focus on processes such as aesthetic build-up, fabricating, casting, soldering, polishing and detailed ceramic layering.</td>
<td>Hybrid</td>
<td>2</td>
<td>$1,100 - $1,400</td>
</tr>
</tbody>
</table>
### Table 16 – Traineeship Courses Available to GCE ‘N’ and GCE ‘O’ Level Holders

<table>
<thead>
<tr>
<th>Area / Course Title</th>
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</thead>
<tbody>
<tr>
<td>HEALTH CARE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nitec in Dental Assisting</td>
<td>3 GCE ‘N’ Level passes (Grade A-D or Grade 1-5) in English Language and two other subjects OR 2 GCE ‘O’ Level Grades (Grade 1-8) in any two subjects</td>
<td>The trainees should be able to assist the dental surgeon at the chairside at dental surgeries and clinics. The training will train one towards being a dental surgical assistant who will focus on preparing the clinic for service by preparing the necessary instruments for use during dental examination and assisting the dental surgeon in the treatment of patients. Some basic administrative duties like registering patient, scheduling appointments and handling payments will also be performed.</td>
<td>D/R</td>
<td>1</td>
<td>$1,100 - $1,500</td>
</tr>
<tr>
<td>ISC in Health Care (Home Care)</td>
<td>Completed at least Sec 3 ‘N’ education (or equivalent)</td>
<td>The trainee should be able to perform health care and housekeeping tasks like feeding patients and making beds, providing personal grooming and hygiene services, assist in lifting, moving and transporting elderly patients while working in a nursing home environment.</td>
<td>D/R</td>
<td>1</td>
<td>$1,100 - $1,200</td>
</tr>
<tr>
<td>MARINE FABRICATION</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nitec in Fabrication Technology (Hull &amp; Structures)</td>
<td></td>
<td>The trainee should be able to weld fillet and grooved joints, cut pipes and plates using plasma-arc cutting, develop, form and assemble plates and pipes using heatline bending.</td>
<td>F/T followed by OJT in first year. D/R in second year</td>
<td>2</td>
<td>$1,100 - $1,300</td>
</tr>
<tr>
<td>Nitec in Fabrication Technology (Marine Pipe)</td>
<td>Completed GCE ‘N’ Level OR GCE ‘O’ Level</td>
<td>The trainee should be able to weld flange joints, brace pipe-to-plate and pipe-to-pipe joints, cut pipes and plates using plasma-arc cutting, bend pipes using hot and cold bending, install and test pipes, develop and form plates and pipes, and weld and join plastic pipes.</td>
<td>2</td>
<td>$1,100 - $1,300</td>
<td></td>
</tr>
<tr>
<td>Nitec in Marine Technology</td>
<td></td>
<td>The trainee should be able to install, service and repair marine engines and other auxiliary equipment.</td>
<td>2</td>
<td>$1,100 - $1,300</td>
<td></td>
</tr>
</tbody>
</table>

Note: Not all Traineeship courses are offered in every intake.

- **D/R**: Day release [Off-the-job training one/two days and on-the-job training for the rest of the week]
- **F/T**: Full-time off-the-job training
- **OJT**: On-the-job training
- **Hybrid**: Mixture of F/T and D/R training
- **#**: Applicants for these courses must ensure that they are free from colour appreciation deficiency
- *****: Applicants for these courses must have completed National Service
WORK-STUDY DIPLOMA

General Information
The ITE Work-Study Diploma is a ‘work-study’ programme designed to create alternative pathways of success for ITE graduates through learning by doing to prepare them for higher level job with deepened skills. The trainee is employed by a company to undergo a Work-Study Diploma course leading to a national certification awarded by ITE. During the period of training, the trainee is an employee of the company and receives a monthly salary as well as enjoys benefits similar to other full-time employees. All course fees are fully paid by the sponsoring companies.

On-the-job training
Trainees participating in the Work-Study Diploma perform on-the-job training on actual jobs. A trained and qualified supervisor will instruct, guide and oversee the trainees’ work.

Off-the-job training
Trainees also attend theory and practical lessons where they are taught the technical knowledge and skills related to their trade area. The off-the-job training will be conducted at an ITE College. The off-the-job training component is conducted on a day-release (full-time 1 or 2 days a week) or block-release basis or a mix of these modes.

Application for a Work-Study Diploma Course
The Work-Study Diploma recruitment intake exercise for admission is scheduled in November 2021 to January 2022. Classes will commence in April 2022.

Application Procedure
1. Applicants are required to prepare a resume and submit their applications via the Admission page on ITE website.
2. Applicants will submit their resumes to companies of their choice and attend interviews with the companies if they are shortlisted.
3. An applicant must be employed by a participating company in order to join a Work-Study Diploma course.

Details of the courses such as their entry requirements, course objectives and duration are given in Table 17.

Certification
On successful completion of all prescribed modules, trainees will be awarded a Diploma.
### Table 17 – Work-Study Diploma Courses Available to *Higher Nitec / Nitec* Holders

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Course Objective</th>
<th>Duration (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AIRCRAFT CABIN ENGINEERING</strong></td>
<td>The WSDip in Aircraft Cabin Engineering adopts a practice-based curriculum to prepare trainees for a professional career in the Aerospace sector. This course equips trainees with the engineering skills, knowledge and professional attributes to perform inspection, maintenance and refurbishment of aircraft interior for aesthetics and passenger comfort.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

### Minimum Entry Requirements

*Nitec* or equivalent: GPA ≥ 2.0:

- Aerospace Avionics
- Aerospace Machining Technology
- Aerospace Technology
- Automotive Technology
- Built Environment (Mechanical & Electrical Services)
- Built Environment (Vertical Transportation)
- Digital & Precision Engineering
- Electrical Technology (Lighting & Sound)
- Electrical Technology (Power & Control)
- Mechanical Technology
- Mechatronics & Robotics
- Rapid Transit Technology

*Higher Nitec* or equivalent:

- Automotive Engineering
- Electrical Engineering
- Engineering with Business
- Facility Management
- Integrated Mechanical & Electrical Design
- Marine & Offshore Technology
- Marine Engineering
- Mechanical Engineering
- Mechatronics Engineering
- Offshore & Marine Engineering Design
- Precision Engineering
- Rapid Transit Engineering
- Robotics & Smart Systems

**Note:**
- Applicants with any *Nitec/Higher Nitec* qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
Table 17 – Work-Study Diploma Courses Available to Higher Nitec / Nitec Holders

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Course Objective</th>
<th>Duration (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIRCRAFT ENGINE MAINTENANCE</td>
<td>The WSDip in Aircraft Engine Maintenance adopts a practice-based curriculum to prepare trainees for a professional career in the Aerospace sector. The course equips trainees with the skills and knowledge to perform aircraft maintenance, visual inspection and non-destructive testing of aircraft parts and components.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

Minimum Entry Requirements

**Nitec** or equivalent: GPA ≥ 2.0:
- Aerospace Avionics
- Aerospace Machining Technology
- Aerospace Technology
- Electrical Technology (Lighting & Sound)
- Electrical Technology (Power & Control)
- Mechanical Technology
- Mechatronics & Robotics

**Higher Nitec** or equivalent:
- Electrical Engineering
- Mechanical Engineering
- Mechatronics Engineering
- Robotics & Smart Systems

Note:
- Applicants with any Nitec/Higher Nitec qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
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</tr>
</thead>
<tbody>
<tr>
<td>AIRCRAFT MAINTENANCE ENGINEERING</td>
<td>The WSDip in Aircraft Maintenance Engineering adopts a practice-based curriculum to prepare trainees for a professional career in the Aerospace sector. The course equips trainees with skills, knowledge and professional attributes to inspect, troubleshoot, maintain and repair aircraft structure, systems (mechanical, electrical and avionics) and associated components using appropriate methods and techniques in accordance with approved procedures and regulations to ensure airworthiness of aircraft.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

**Minimum Entry Requirements**

_Nitec or equivalent: GPA ≥ 2.0:_
- Aerospace Avionics
- Aerospace Technology
- Electrical Technology (Power & Control)
- Electrical Technology (Lighting & Sound)
- Electronics, Computer Networking & Communications
- Electronics & Internet of Things
- Mechatronics & Robotics
- Mechanical Technology

_Higher Nitec or equivalent:_
- Electrical Engineering
- Electronics Engineering
- Mechanical Engineering
- Mechatronics Engineering
- Robotics & Smart Systems

Note:
- Applicants with any _Nitec/Higher Nitec_ qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
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</tr>
</thead>
<tbody>
<tr>
<td>AIRPORT OPERATIONS</td>
<td>The WSDip in Airport Operations adopts a practice-based curriculum to prepare trainees for a professional career in the Air Transport sector. The course equips trainees with the skills and knowledge to provide airport ground handling services, which include managing operations, implementing Standard Operating Procedures, operating different equipment/vehicles, and deploying technological tools to address customers and stakeholders’ needs.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

**Minimum Entry Requirements**

- **Nitec** or equivalent: GPA ≥ 2.0:
  - Aerospace Avionics
  - Aerospace Machining Technology
  - Aerospace Technology
  - Automotive Technology (Heavy Vehicles)
  - Automotive Technology (Light Vehicles)
  - Business Administration
  - Business Services
  - Facility Technology
  - Logistics Services
  - Mechanical Technology

- **Higher Nitec** or equivalent:
  - Automotive Engineering
  - Event Management
  - International Logistics
  - Maritime Business
  - Mechanical Engineering
  - Passenger Services

**Note:**
- Applicants with any **Nitec/Higher Nitec** qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
- Applicants must be free from acrophobia.
### Table 17 – Work-Study Diploma Courses Available to Higher Nitec / Nitec Holders

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Course Objective</th>
<th>Duration (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>APPLIED ELECTRONICS &amp; AI</strong></td>
<td>The WSDip in Applied Electronics &amp; AI is a work-study programme that seeks to equip trainees with the skills and knowledge to integrate, deploy and manage electronics systems and connectivity, as well as apply AI solutions and automation, to achieve continuous process improvement in a digitalised work environment.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

**Minimum Entry Requirements**

* **Nitec or equivalent: GPA ≥ 2.0:**
  - Electronics & Internet of Things
  - Electronics, Computer Networking & Communications
  - Infocomm Technology
  - Mechatronics & Robotics
  - Microelectronics
  - Security Technology
  - Web Applications

* **Higher Nitec or equivalent:**
  - Business Information Systems
  - Cyber & Network Security
  - Electronics Engineering
  - IT Applications Development
  - IT Systems & Networks
  - Mechatronics Engineering
  - Robotics & Smart Systems
  - Security System Integration

**Note:**
- Applicants with any Nitec/Higher Nitec qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
### Table 17 – Work-Study Diploma Courses Available to Higher Nitec / Nitec Holders

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<tr>
<th>Course Title</th>
<th>Course Objective</th>
<th>Duration (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARBORICULTURE &amp; HORTICULTURE</td>
<td>The WSDip in Arboriculture &amp; Horticulture adopts a practice-based curriculum to prepare trainees for a professional career in the Landscape sector. The course equips trainees with the skills and knowledge to manage arboriculture and horticulture projects, perform greenery management, apply mechanisation and automation technology, develop landscape operation and maintenance programmes, as well as implement safe work practices at the worksite.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

#### Minimum Entry Requirements

**Nitec or equivalent: GPA ≥ 2.0:**
- Built Environment (Mechanical & Electrical Services)
- Built Environment (Vertical Transportation)
- Electrical Technology (Lighting & Sound)
- Electrical Technology (Power & Control)
- Electronics, Computer Networking & Communications
- Facility Technology (Air-Conditioning & Refrigeration)
- Facility Technology (Landscaping Services)
- Facility Technology (Mechanical & Electrical Services)
- Facility Technology (Vertical Transportation)
- Floristry
- Mechanical Technology
- Mechatronics & Robotics
- Urban Greenery & Landscape

**Higher Nitec or equivalent:**
- Civil & Structural Engineering Design
- Electrical Engineering
- Electronics Engineering
- Engineering with Business
- Facility Management
- Facility Systems Design
- Landscape Management & Design
- Mechanical Engineering
- Mechatronics Engineering
- Robotics & Smart Systems

**Note:**
- Applicants with any Nitec/Higher Nitec qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
### Table 17 – Work-Study Diploma Courses Available to *Higher Nitec / Nitec* Holders

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<tr>
<th>Course Title</th>
<th>Course Objective</th>
<th>Duration (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCHITECTURAL BIM &amp; DESIGN</td>
<td>The WSDip in Architectural BIM &amp; Design aims to equip trainees with technical skill competencies to assist in architectural design and produce architectural drawings, to meet the design and regulatory requirements, using Building Information Modelling (BIM) software. The Trainee will also be trained to liaise with the relevant authorities and stakeholders in the various phases of architectural design &amp; construction.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

#### Minimum Entry Requirements

| Nitec or equivalent: GPA ≥ 2.0:          | Architectural Technology  |  
|                                        | Interior & Exhibition Design |  
|                                        | Product Design               |  
|                                        | Space Design (Architecture)  |  
|                                        | Space Design (Interior & Exhibition) |  |

| Higher Nitec or equivalent:            | Architectural Technology  |  
|                                        | Civil & Structural Engineering Design |  
|                                        | Space Design Technology         |  
|                                        | Visual Merchandising            |  |

Note:
- Applicants with any *Nitec/Higher Nitec* qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
- Applicants must be free from colour appreciation deficiency.
### Table 17 – Work-Study Diploma Courses Available to *Higher Nitec / Nitec* Holders

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Course Objective</th>
<th>Duration (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTOMATION ENGINEERING</td>
<td>The WSDip in Automation Engineering adopts a practice-based curriculum to prepare trainees for a professional career in the Precision Engineering sector. The course equips trainees with the skills and knowledge in the installation, maintenance and troubleshooting of computer-controlled systems, equipment and robotics in advanced manufacturing facilities.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

#### Minimum Entry Requirements

- **Nitec or equivalent: GPA ≥ 2.0:**
  - Electrical Technology (Power & Control)
  - Mechanical Technology
  - Mechatronics & Robotics

- **Higher Nitec or equivalent:**
  - Electrical Engineering
  - Engineering with Business
  - Mechanical Engineering
  - Mechatronics Engineering
  - Robotics & Smart Systems

Note:

- Applicants with any *Nitec/Higher Nitec* qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
- Applicants must be free from colour appreciation deficiency.
Table 17 – Work-Study Diploma Courses Available to *Higher Nitec / Nitec* Holders

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<tr>
<th>Course Title</th>
<th>Course Objective</th>
<th>Duration (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUILT ENVIRONMENT (MECHANICAL &amp; ELECTRICAL SERVICES SUPERVISION)</td>
<td>The WSDip in Built Environment (Mechanical &amp; Electrical Services Supervision) course adopts a practice-based curriculum to prepare trainees for a professional career in the built environment sector. The course aims to equip trainees with the skills, knowledge and professional attributes to supervise, coordinate, inspect, test and commission M&amp;E services works in buildings to ensure M&amp;E works are carried out in compliance with contracts specifications, drawings and statutory requirements. The trainees will also be equipped with skills and knowledge in monitoring projects progress and verifying progress claims.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

**Minimum Entry Requirements**

<table>
<thead>
<tr>
<th><em>Nitec</em> or equivalent: GPA ≥ 2.0:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Aerospace Avionics</td>
<td>• Facility Technology (Landscaping Services)</td>
</tr>
<tr>
<td>• Aerospace Technology</td>
<td>• Facility Technology (Mechanical &amp; Electrical Services)</td>
</tr>
<tr>
<td>• Architectural Technology</td>
<td>• Facility Technology (Vertical Transportation)</td>
</tr>
<tr>
<td>• Automotive Technology</td>
<td>• Mechanical Technology</td>
</tr>
<tr>
<td>• Built Environment (Mechanical &amp; Electrical Services)</td>
<td>• Mechatronics</td>
</tr>
<tr>
<td>• Built Environment (Vertical Transportation)</td>
<td>• Mechatronics &amp; Robotics</td>
</tr>
<tr>
<td>• Digital &amp; Precision Engineering</td>
<td>• Rapid Transit Technology</td>
</tr>
<tr>
<td>• Electrical Technology (Lighting &amp; Sound)</td>
<td>• Space Design (Architecture)</td>
</tr>
<tr>
<td>• Electrical Technology (Power &amp; Control)</td>
<td></td>
</tr>
<tr>
<td>• Facility Technology (Air-Conditioning &amp; Refrigeration)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><em>Higher Nitec</em> or equivalent:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Aerospace Engineering</td>
<td>• Marine &amp; Offshore Technology</td>
</tr>
<tr>
<td>• Architectural Technology</td>
<td>• Marine Engineering</td>
</tr>
<tr>
<td>• Automotive Engineering</td>
<td>• Mechanical Engineering</td>
</tr>
<tr>
<td>• Civil &amp; Structural Engineering Design</td>
<td>• Mechatronics Engineering</td>
</tr>
<tr>
<td>• Electrical Engineering</td>
<td>• Offshore &amp; Marine Engineering Design</td>
</tr>
<tr>
<td>• Engineering with Business</td>
<td>• Process Plant Design</td>
</tr>
<tr>
<td>• Facility Management</td>
<td>• Rapid Transit Engineering</td>
</tr>
<tr>
<td>• Facility Systems Design</td>
<td>• Robotics &amp; Smart Systems</td>
</tr>
<tr>
<td>• Integrated Mechanical &amp; Electrical Design</td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
- Applicants with any *Nitec/Higher Nitec* qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
- Applicants must be free from colour appreciation deficiency.
### Table 17 – Work-Study Diploma Courses Available to *Higher Nitec / Nitec* Holders

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Course Objective</th>
<th>Duration (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLOUD MANAGEMENT &amp; OPERATIONS</td>
<td>The WSDip in Cloud Management &amp; Operations adopts a practice-based curriculum to prepare trainees for a professional career in the IT sector. The course aims to equip trainees with skills, knowledge and professional attributes to configure, administer, maintain and automate cloud operations / solutions to ensure smooth running of cloud operations and continuous improvement of cloud solutions.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

**Minimum Entry Requirements**

- *Nitec* or equivalent: GPA ≥ 2.0:  
  - All *Nitec* courses from the School of Electronics & Info-comm Technology

- *Higher Nitec* or equivalent:  
  - All *Higher Nitec* courses from the School of Electronics & Info-comm Technology

**Note:**

- Applicants with any *Nitec/Higher Nitec* qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
### Table 17 – Work-Study Diploma Courses Available to *Higher Nitec / Nitec* Holders

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</thead>
<tbody>
<tr>
<td>CHEMICAL PROCESS TECHNOLOGY</td>
<td>The WSDip in Chemical Process Technology adopts a practice-based curriculum to prepare trainees for a professional career in the Energy &amp; Chemicals sector. The course equips trainees with the skills and knowledge to execute and maintain safe and reliable plant operation by performing routine process unit and utility works at the plant site, as well as basic frontline maintenance, in accordance with Standard Operating Procedures (SOPs). Trainees are also equipped to monitor process parameters, perform in-process sampling and basic testing to meet customer requirements.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

**Minimum Entry Requirements**

- *Nitec* or equivalent: GPA ≥ 2.0:
  - Chemical Process Technology
  - Electrical Technology
  - Mechanical Technology
- *Higher Nitec* or equivalent:
  - Electrical Engineering
  - Mechanical Engineering

Note:
- Applicants with any *Nitec/Higher Nitec* qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
- Applicants must be free from colour appreciation deficiency.
Table 17 – Work-Study Diploma Courses Available to Higher Nitec / Nitec Holders

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</thead>
<tbody>
<tr>
<td>COMMUNITY ENGAGEMENT &amp; DEVELOPMENT</td>
<td>The WSDip in Community Engagement &amp; Development adopts a practice-based curriculum to prepare trainees for a professional career in the Social Service sector. The course equips trainees with the skills and knowledge to serve the community and facilitate social engagement, to bond and build a caring and inclusive society.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

Minimum Entry Requirements

- *Nitec* or equivalent: GPA ≥ 2.0:  
  - All *Nitec* courses from the School of Business & Services

- *Higher Nitec* or equivalent:  
  - All *Higher Nitec* courses from the School of Business & Services

Note:
- Applicants with any *Nitec/Higher Nitec* qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
Table 17 – Work-Study Diploma Courses Available to Higher Nitec / Nitec Holders

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</tr>
</thead>
<tbody>
<tr>
<td>CULINARY ARTS &amp; MANAGEMENT</td>
<td>The WSDip in Culinary Arts &amp; Management adopts a practice-based curriculum to prepare trainees for a professional career in the Food Services sector. The course equips trainees with the skills and knowledge to manage kitchen station, inventory, catering and buffet set-up, perform garde manger work, prepare heritage and contemporary cuisine, develop new dishes and menu as well as manage staff to meet organisation’s service and operation standards.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

Minimum Entry Requirements

- **Nitec or equivalent: GPA ≥ 2.0:**
  - Asian Culinary Arts
  - Pastry & Baking
  - Western Culinary Arts

- **Higher Nitec or equivalent:**
  - Culinary Arts
  - Pastry & Baking

Note:

- Applicants with any Nitec/Higher Nitec qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
Table 17 – Work-Study Diploma Courses Available to Higher Nitec / Nitec Holders

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<tbody>
<tr>
<td>CYBER SECURITY &amp; FORENSICS</td>
<td>The WSDip in Cyber Security &amp; Forensics adopts a practice-based curriculum to prepare trainees for a professional career in the Cyber Security sector. The course equips trainees with the skills and knowledge to manage server and network security infrastructure, perform security assessment and testing, threat detection, incident response, as well as forensics operation in accordance with the compliance policy and procedure so as to build resilient defence against cyber-attacks for the business.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

Minimum Entry Requirements

_Nitec or equivalent: GPA ≥ 2.0:_
- Infocomm Technology

_Higher Nitec or equivalent:_
- Business Information Systems
- Cyber & Network Security
- IT Systems & Networks

Note:
- Applicants with any Nitec/Higher Nitec qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
Table 17 – Work-Study Diploma Courses Available to Higher Nitec / Nitec Holders

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</thead>
<tbody>
<tr>
<td>DATA CENTRE INFRASTRUCTURE &amp; OPERATION</td>
<td>The WSDip in Data Centre Infrastructure &amp; Operation adopts a practice-based curriculum to prepare trainees for a professional career in the Infocomm Technology sector. The course equips trainees with the skills and knowledge to manage data centre information/network systems, monitor data centre operation and services, maintain internal documentation and perform independent first-level troubleshooting of recurrent issue.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

Minimum Entry Requirements

**Nitec or equivalent: GPA ≥ 2.0:**
- Built Environment
- Electrical Technology
- Electronics, Computer Networking & Communications
- Facility Technology
- Infocomm Technology
- Mechatronics

**Higher Nitec or equivalent:**
- Business Information Systems
- Cyber & Network Security
- Electrical Engineering
- Electronics Engineering
- Facility Management
- IT Systems & Networks
- Mechatronics Engineering

Note:
- Applicants with any Nitec/Higher Nitec qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
Table 17 – Work-Study Diploma Courses Available to *Higher Nitec / Nitec* Holders

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<tr>
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<th>Course Objective</th>
<th>Duration (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>E-COMMERCE &amp; RETAIL (SUPERMARKET MANAGEMENT)</strong></td>
<td>The WSDip in E-Commerce &amp; Retail (Supermarket Management) aims to equip trainees with the necessary knowledge and skills to perform and build a retail career with deep understanding of e-commerce and supermarket management enabled by retail technology applications.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

**Minimum Entry Requirements**

*Nitec* or equivalent: GPA ≥ 2.0:
- Beauty & Wellness
- Business Administration
- Business Services
- Finance Services
- Fitness Training
- Floristry
- Hair Fashion & Design
- Hospitality Operations
- Logistics Services
- Retail Services
- Travel & Tourism Services

*Higher Nitec* or equivalent:
- Accounting
- Beauty & Wellness Management
- Early Childhood Education
- Event Management
- Financial Services
- Hospitality Operations
- Human Resource & Administration
- International Logistics
- Leisure & Travel Operations
- Maritime Business
- Passenger Services
- Retail & Online Business
- Service Management
- Sport Management
- Visual Merchandising

*Note:*
- Applicants with any *Nitec/Higher Nitec* qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
### Course Title: ELECTRICAL ENGINEERING

The WSDip in Electrical Engineering adopts a practice-based curriculum to prepare trainees for a professional career in the Energy and Power and Engineering Services sectors. The course equips trainees with the skills and knowledge to design, install, maintain, repair, inspect, test, operate and supervise electrical installations and systems in accordance with engineering specifications as well as codes of practice and regulations.

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Course Objective</th>
<th>Duration (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELECTRICAL ENGINEERING</td>
<td>The WSDip in Electrical Engineering adopts a practice-based curriculum to prepare trainees for a professional career in the Energy and Power and Engineering Services sectors. The course equips trainees with the skills and knowledge to design, install, maintain, repair, inspect, test, operate and supervise electrical installations and systems in accordance with engineering specifications as well as codes of practice and regulations.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

### Minimum Entry Requirements

- **Nitec or equivalent: GPA ≥ 2.0:**
  - Aerospace Avionics
  - Electrical Technology (Lighting & Sound)
  - Electrical Technology (Power & Control)
  - Electronics, Computer Networking & Communications

- **Higher Nitec or equivalent:**
  - Electrical Engineering
  - Electronics Engineering

### Note:
- Applicants with any Nitec/Higher Nitec qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
- Applicants must be free from colour appreciation deficiency.
### Table 17 – Work-Study Diploma Courses Available to *Higher Nitec / Nitec* Holders

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Course Objective</th>
<th>Duration (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EVENT MANAGEMENT</strong></td>
<td>The WSDip in Event Management adopts a practice-based curriculum to prepare trainees for a professional career in the Tourism sector. The course equips trainees with the skills and knowledge to conceptualise, plan, and execute both MICE (Meetings, Incentives, Conventions &amp; Exhibitions) and special events with a strong focus on creating memorable customer experience, enabled by event technologies.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

**Minimum Entry Requirements**

- **Nitec or equivalent:** GPA ≥ 2.0:  
  - Beauty & Wellness
  - Business Administration
  - Business Services
  - Finance Services
  - Fitness Training
  - Floristry
  - Hair Fashion & Design
  - Hospitality Operations
  - Logistics Services
  - Retail Services
  - Travel & Tourism Services

- **Higher Nitec or equivalent:**  
  - Accounting
  - Banking Services
  - Beauty & Wellness Management
  - Early Childhood Education
  - Event Management
  - Hospitality Operations
  - Human Resource & Administration
  - International Logistics
  - Leisure & Travel Operations
  - Maritime Business
  - Passenger Services
  - Retail & Online Business
  - Service Management
  - Sport Management

**Note:**
- Applicants with any *Nitec/Higher Nitec* qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
Table 17 – Work-Study Diploma Courses Available to *Higher Nitec / Nitec* Holders

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Course Objective</th>
<th>Duration (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FITNESS MANAGEMENT</strong></td>
<td>The WSDip in Fitness Management adopts a practice-based curriculum to prepare trainees for a professional career in the Fitness and Wellness sector. The course equips trainees with the skills and knowledge to conduct fitness assessments and provide personalised and group exercises for individuals, masses and organizations. The graduate could become a fitness entrepreneur running a fitness and wellness business locally or internationally.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

**Minimum Entry Requirements**

| Nitec or equivalent: GPA ≥ 2.0: | • Business Administration  
• Business Services  
• Fitness Training |
|--------------------------------|--------------------------------------------------|
| Higher Nitec or equivalent:    | • Event Management  
• Service Management  
• Sport Management |

Note:

- Applicants with any *Nitec/Higher Nitec* qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
- As part of the diploma course, trainees will be prepared to sit for the ACE Personal Trainer Certification (Exam Fees to be borne by trainees).
<table>
<thead>
<tr>
<th>Course Title</th>
<th>Course Objective</th>
<th>Duration (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOTEL &amp; RESTAURANT MANAGEMENT</td>
<td>The WSDip in Hotel &amp; Restaurant Management adopts a practice-based curriculum to prepare trainees for a professional career in the Hospitality sector. The course equips trainees with the skills and knowledge to oversee day-to-day operation of Front Office, Housekeeping and Restaurant functions in a hotel, handle guests’ concerns, and manage team operation for service excellence to meet the hotel’s service and operation standards.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

**Minimum Entry Requirements**

- *Nitec or equivalent: GPA ≥ 2.0:*
  - Food & Beverage Operations
  - Hospitality Operations
  - Travel & Tourism Services

- *Higher Nitec or equivalent:*
  - Event Management
  - Hospitality Operations
  - Leisure & Travel Operations
  - Passenger Services
  - Service Management

**Note:**
- Applicants with any Nitec/Higher Nitec qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
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<tr>
<th>Course Title</th>
<th>Course Objective</th>
<th>Duration (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IOT &amp; DATA ENGINEERING</td>
<td>The WSDip in IoT &amp; Data Engineering seeks to equip trainees with the skills and knowledge to design, integrate and manage IoT-based data analysis and engineering to optimise operational efficiency and reliability in Advanced Manufacturing, Smart Nation, Logistics, Smart Building and Digital Supply Chain related business applications.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

**Minimum Entry Requirements**

*Nitec* or equivalent: GPA ≥ 2.0:
- Electronics & Internet of Things
- Electronics, Computer Networking & Communications
- Infocomm Technology
- Mechatronics & Robotics
- Microelectronics
- Security Technology
- Web Applications

*Higher Nitec* or equivalent:
- Business Information Systems
- Cyber & Network Security
- Data Engineering
- Electronics Engineering
- IT Applications Development
- IT Systems & Networks
- Mechatronics Engineering
- Robotics & Smart Systems
- Security System Integration

Note:
- Applicants with any *Nitec*/*Higher Nitec* qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
Table 17 – Work-Study Diploma Courses Available to Higher Nitec / Nitec Holders

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Course Objective</th>
<th>Duration (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT SYSTEM INTEGRATION</td>
<td>The WSDip in IT System Integration adopts a practice-based curriculum to prepare trainees for a professional career in the Infocomm Media sector. The course equips trainees with the skills and knowledge to deploy and test infrastructure hardware and software, as well as apply analytics and automation to optimise operational stability, as well as efficiency and reliability of the infrastructure system.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

Minimum Entry Requirements

**Nitec or equivalent: GPA ≥ 2.0:**
- Electronics, Computer Networking & Communications
- Infocomm Technology
- Security Technology
- Web Applications

**Higher Nitec or equivalent:**
- Business Information Systems
- Cyber & Network Security
- Data Engineering
- Electronics Engineering
- IT Applications Development
- IT Systems & Networks
- Security System Integration

Note:
- Applicants with any Nitec/Higher Nitec qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
<table>
<thead>
<tr>
<th>Course Title</th>
<th>Course Objective</th>
<th>Duration (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LAND TRANSPORT ENGINEERING</strong></td>
<td>The WSDip in Land Transport Engineering aims to equip trainees with the skills, knowledge and professional attributes to inspect, troubleshoot, maintain and repair vehicle/rail systems (mechanical, electrical, electronics and control) and associated sub-systems and components using appropriate methods and procedures to ensure safe and efficient operation of the equipment and systems.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

**Minimum Entry Requirements**

- **Nitec** or equivalent: GPA ≥ 2.0:
  - Aerospace Avionics
  - Aerospace Technology
  - Automotive Technology
  - Built Environment (Mechanical & Electrical Services)
  - Built Environment (Vertical Transportation)
  - Electrical Technology (Power & Control)
  - Electrical Technology (Lighting & Sound)
  - Electronics, Computer Networking & Communications
  - Electronics & Internet of Things
  - Mechatronics & Robotics
  - Mechanical Technology
  - Marine Engineering
  - Marine & Offshore Technology
  - Mechanical Engineering
  - Mechatronics Engineering
  - Process Plant Design
  - Offshore & Marine Engineering Design
  - Rapid Transit Engineering
  - Robotics & Smart Systems

- **Higher Nitec** or equivalent:
  - Aerospace Engineering
  - Automotive Engineering
  - Civil & Structural Engineering Design
  - Electrical Engineering
  - Electronics Engineering
  - Engineering with Business
  - Facility Management
  - Integrated Mechanical & Electrical Design
  - Marine Engineering
  - Marine & Offshore Technology
  - Mechanical Engineering
  - Mechatronics Engineering
  - Process Plant Design
  - Offshore & Marine Engineering Design
  - Rapid Transit Engineering
  - Robotics & Smart Systems

**Note:**
- Applicants with any **Nitec/Higher Nitec** qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
- Applicants must be free from colour appreciation deficiency.
### Table 17 – Work-Study Diploma Courses Available to *Higher Nitec / Nitec* Holders

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Course Objective</th>
<th>Duration (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LIFESTYLE &amp; RECREATION MANAGEMENT</strong></td>
<td>The WSDip in Lifestyle &amp; Recreation Management adopts a practice-based curriculum to prepare trainees for a professional career in the wide-ranging Lifestyle sector. The course equips trainees with the skills and knowledge to plan, conceptualise, implement and evaluate lifestyle recreation programme for members of public and/or private club and lifestyle &amp; recreation organisation.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

#### Minimum Entry Requirements

- *Nitec* or equivalent: GPA ≥ 2.0:  
  - All *Nitec* courses from the School of Business & Services

- *Higher Nitec* or equivalent:  
  - All *Higher Nitec* courses from the School of Business & Services

**Note:**

- Applicants with any *Nitec/Higher Nitec* qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
Table 17 – Work-Study Diploma Courses Available to *Higher Nitec / Nitec* Holders

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Course Objective</th>
<th>Duration (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOGISTICS &amp; SUPPLY CHAIN MANAGEMENT</td>
<td>The WSDip in Logistics &amp; Supply Chain Management adopts a practice-based curriculum to prepare trainees for a professional career in the Logistics sector. The course equips trainees with skills and knowledge to manage warehousing, transportation and freight operations, leverage on data analytics and technology to provide logistical solution, and implement process improvement at the workplace.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

**Minimum Entry Requirements**

*Nitec* or equivalent: GPA ≥ 2.0:
- Business Services
- Electronics, Computer Networking & Communications
- Logistics Services
- Retail Services

*Higher Nitec* or equivalent:
- Business Information Systems
- Engineering with Business
- Event Management
- Human Resource & Administration
- Integrated Logistics Management
- International Logistics
- Logistics for International Trade
- Maritime Business
- Mechanical Engineering
- Passenger Services
- Retail & Online Business
- Robotics & Smart Systems
- Service Management

**Note:**
- Applicants with any *Nitec/Higher Nitec* qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
### Table 17 – Work-Study Diploma Courses Available to Higher Nitec / Nitec Holders

<table>
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<tr>
<th>Course Title</th>
<th>Course Objective</th>
<th>Duration (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MARINE &amp; OFFSHORE ENGINEERING</td>
<td>The WSDip in Marine &amp; Offshore Engineering adopts a practice-based curriculum to prepare trainees for a professional career in the Marine and Offshore sector. The Engineering Design specialisation in this course equips trainees with the skills and knowledge in design of ships and marine systems, while the Production (Repair &amp; Maintenance) specialisation equips trainees with the skills and knowledge in supervision of repair and maintenance for ships and marine systems.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

#### Minimum Entry Requirements

**Nitec or equivalent: GPA ≥ 2.0:**
- Aerospace Avionics
- Aerospace Machining Technology
- Aerospace Technology
- Automotive Technology (Heavy Vehicles)
- Automotive Technology (Light Vehicles)
- Built Environment (Mechanical & Electrical Services)
- Built Environment (Vertical Transportation)
- Electrical Technology (Lighting & Sound)
- Electrical Technology (Power & Control)
- Fabrication Technology (Hull & Structures)
- Fabrication Technology (Marine Pipe)
- Facility Technology (Air-Conditioning & Refrigeration)
- Facility Technology (Landscaping Services)
- Facility Technology (Mechanical & Electrical Services)
- Facility Technology (Vertical Transportation)
- Laser & Tooling Technology
- Marine Electrical Technology
- Marine Technology
- Mechanical Technology
- Mechatronics
- Medical Manufacturing Technology
- Rapid Transit Technology
- Welding

**Higher Nitec or equivalent:**
- Civil & Structural Engineering Design
- Electrical Engineering
- Engineering with Business
- Facility Systems Design
- Facility Management
- Marine Engineering
- Marine & Offshore Technology
- Mechanical Engineering
- Mechatronics Engineering
- Offshore & Marine Engineering Design
- Precision Engineering
- Process Plant Design
- Rapid Transit Engineering

**Note:**
- Applicants with any Nitec/Higher Nitec qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
- Applicants must be free from colour appreciation deficiency.
### Table 17 – Work-Study Diploma Courses Available to Higher Nitec / Nitec Holders

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Course Objective</th>
<th>Duration (Years)</th>
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</thead>
<tbody>
<tr>
<td><strong>MARITIME BUSINESS MANAGEMENT</strong></td>
<td>The WSDip in Maritime Business Management adopts a practice-based curriculum to prepare trainees for a professional career in the Sea Transport sector. The course equips trainees with the skills and knowledge to coordinate efficient vessel, port and cargo operations and oversee formalities and declarations for smooth entry and departure of vessels.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

**Minimum Entry Requirements**

- **Nitec** or equivalent: GPA $\geq 2.0$:
  - All Nitec courses from the School of Business & Services

- **Higher Nitec** or equivalent:
  - All Higher Nitec courses from the School of Business & Services
  - Electronics Engineering
  - Marine Engineering
  - Marine & Offshore Technology
  - Offshore & Marine Engineering Design

### Note:

- Applicants with any Nitec/Higher Nitec qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
### Table 17 – Work-Study Diploma Courses Available to Higher Nitec / Nitec Holders

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<tr>
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<th>Duration (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MECHANICAL SYSTEMS ENGINEERING</td>
<td>The WSDip in Mechanical Systems Engineering aims to equip trainees with the skills, knowledge and professional attributes to install, maintain and troubleshoot mechanical equipment and smart systems, implement quality control and risk management procedures, and manage engineering activities to maximise resources and minimise equipment downtime, ensuring the optimal operating condition of the mechanical system.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

### Minimum Entry Requirements

- **Nitec or equivalent: GPA ≥ 2.0:**  
  • All Nitec courses from the School of Engineering

- **Higher Nitec or equivalent:**  
  • All Higher Nitec courses from the School of Engineering

**Note:**
- Applicants with any Nitec/Higher Nitec qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
### Table 17 – Work-Study Diploma Courses Available to *Higher Nitec/Nitec* Holders

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Course Objective</th>
<th>Duration (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MEDIA COMMUNICATION &amp; DIGITAL MARKETING</strong></td>
<td>The WSDip in Media Communication &amp; Digital Marketing adopts a practice-based curriculum to prepare trainees for a professional career in the Media and Goods &amp; Services sectors. The course equips trainees with the skills and knowledge to develop and design digital content for service marketing and training as well as to influence emerging digital practices.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

### Minimum Entry Requirements

**Nitec** or equivalent: GPA ≥ 2.0:
- Business Administration
- Business Services
- Digital Animation
- Digital Audio & Video Production
- Retail Services
- Video Production
- Visual Communication
- Visual Effects
- Web Applications

**Higher Nitec** or equivalent:
- Filmmaking (Cinematography)
- Games Art & Design
- Human Resource & Administration
- Interactive Design
- Motion Graphics
- Retail & Online Business
- Service Management
- Visual Effects
- Visual Merchandising

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**Note:**
- Applicants with any *Nitec/Higher Nitec* qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
- Applicants must be free from colour appreciation deficiency.
## Table 17 – Work-Study Diploma Courses Available to Higher Nitec / Nitec Holders

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Course Objective</th>
<th>Duration (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MICROELECTRONICS</td>
<td>The WSDip in Microelectronics adopts a practice-based curriculum to prepare trainees for a professional career in the Manufacturing sector. The course equips trainees with the skills and knowledge to implement equipment engineering process in a manufacturing environment, analyse equipment maintenance issue and develop maintenance plan for performance enhancement.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

### Minimum Entry Requirements

- **Nitec or equivalent: GPA ≥ 2.0:**
  - Electronics, Computer Networking & Communications
  - Mechanical Technology
  - Mechatronics
  - Microelectronics

- **Higher Nitec or equivalent:**
  - Electronics Engineering
  - Mechanical Engineering
  - Mechatronics Engineering

### Note:
- Applicants with any *Nitec/Higher Nitec* qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
- Applicants must be free from colour appreciation deficiency.
### Table 17 – Work-Study Diploma Courses Available to Higher Nitec / Nitec Holders

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Course Objective</th>
<th>Duration (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPTICIANRY</td>
<td>The WSDip in Opticianry adopts a practice-based curriculum to prepare trainees for a professional career in the Allied Health sector. The course equips trainees with the skills, knowledge and professional attributes to manage refraction cases and provide good ophthalmic solutions to meet the eye care needs of various patient profiles. Trainees will learn advanced refraction techniques, how to create good myopia management plans, manage challenging dispensing cases, effective communication skills and how to use various diagnostic ophthalmic instruments.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

### Minimum Entry Requirements

*Nitec or equivalent: GPA ≥ 2.0:*

- Opticianry

Note:

- Applicants with any *Nitec/Higher Nitec* qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with ACOPOD+R and relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
### Table 17 – Work-Study Diploma Courses Available to *Higher Nitec / Nitec* Holders

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Course Objective</th>
<th>Duration (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PATIENT MANAGEMENT &amp; SERVICES</strong></td>
<td>The WSDip in Patient Management &amp; Services adopts a practice-based curriculum to prepare trainees for a professional career in the Healthcare sector. The course equips trainees with skills and knowledge to provide frontline healthcare patient and ancillary support services for quality inpatient and outpatient customer service, at various service touch points in the hospitals or polyclinics.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

**Minimum Entry Requirements**

- *Nitec* or equivalent: GPA ≥ 2.0:
  - Business Services
  - Dental Assisting
  - Finance Services
  - Fitness Training
  - Travel & Tourism Services

- *Higher Nitec* or equivalent:
  - Accounting
  - Leisure & Travel Operations
  - Passenger Services
  - Service Management
  - Sport Management

**Note:**
- Applicants with any *Nitec/Higher Nitec* qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
<table>
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<tr>
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<th>Course Objective</th>
<th>Duration (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PORT AUTOMATION TECHNOLOGY</td>
<td>The WSDip in Port Automation Technology adopts a practice-based curriculum to prepare trainees for a professional career in the Sea Transport sector. The course equips trainees with the skills and knowledge to perform and supervise maintenance and repair of various port container handling automated systems and equipment, such as network systems, automated cranes and vehicles, in accordance with planned schedule, quality standards, Standard Operating Procedures (SOPs) and Workplace Safety and Health (WSH) guidelines.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

**Minimum Entry Requirements**

*Nitec* or equivalent: GPA ≥ 2.0:
- Automotive Technology
- Electrical Technology
- Electronics
- Mechanical Technology
- Mechatronics & Robotics
- Technology – Port Equipment Technology

*Higher Nitec* or equivalent:
- Automotive Engineering
- Electrical Engineering
- Electronics Engineering
- Mechanical Engineering
- Mechatronics Engineering

**Note:**
- Employed as Technical Specialist/Senior Technical Specialist in PSA with minimum one-year work experience for holder of Nitec or Higher Nitec qualification.
- Applicants must be free from colour appreciation deficiency.
Table 17 – Work-Study Diploma Courses Available to Higher Nitec / Nitec Holders

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Course Objective</th>
<th>Duration (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>REHABILITATION CARE</td>
<td>The WSDip in Rehabilitation Care adopts a practice-based curriculum to prepare trainees for a professional career in the Allied Health industry. The course equips trainees with the skills and knowledge to use various therapy-prescribed treatment plans for client affected by physical injuries, illnesses, developmental disabilities or psychosocial dysfunctions. They will also acquire strategies to promote health and wellness related to active ageing.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

Minimum Entry Requirements

- *Nitec* or equivalent: GPA ≥ 2.0:
  - Community Care & Social Services
  - Nursing

- *Higher Nitec* or equivalent:
  - Paramedic & Emergency Care

Note:
- Applicants must be employed as Therapy Assistants and sponsored by their employers.
- Applicants with relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with equivalent qualifications, such as Workplace Literacy and Numeracy (WPLN) qualifications and relevant Workforce Skills Qualifications (WSQs), such as WSQ Higher Certificate in Healthcare Support (Therapy Support) may also be considered.
- ITE graduates already in employment need not have GPA requirement if they have at least 2 years of relevant work experience and the support of their employers.
Table 17 – Work-Study Diploma Courses Available to *Higher Nitec / Nitec* Holders

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Course Objective</th>
<th>Duration (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SECURITY SYSTEMS ENGINEERING</strong></td>
<td>The WSDip in Security Systems Engineering adopts a practice-based curriculum to prepare trainees for a professional career in the Security Technology industry. The course equips trainees with the skills and knowledge to design, install, integrate and manage the implementation of physical security projects, and maintenance of physical security systems to safeguard personnel, property and information.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

**Minimum Entry Requirements**

*Nitec* or equivalent: GPA ≥ 2.0:
- Electrical Technology (Lighting & Sound)
- Electrical Technology (Power & Control)
- Electronics, Computer Networking & Communications
- Info-Communications Technology
- Security Technology

*Higher Nitec* or equivalent:
- Cyber & Network Security
- Electrical Engineering
- Electronics Engineering
- Facility Management
- Information Technology
- Security System Integration

Note:
- Applicants with any *Nitec/Higher Nitec* qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
- Applicants must be free from colour appreciation deficiency.
### Table 17 – Work-Study Diploma Courses Available to *Higher Nitec / Nitec* Holders

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Course Objective</th>
<th>Duration (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VERTICAL TRANSPORTATION</strong></td>
<td>The WSDip in Vertical Transportation adopts a practice-based curriculum to prepare trainees for a professional career in the Built Environment sector. The course equips trainees with the skills and knowledge to manage and supervise new lift installation or upgrading project, as well as perform high-level lift inspection, maintenance, servicing and fault diagnostic, in compliance with all relevant standards, regulations and codes of practice.</td>
<td>2.5</td>
</tr>
</tbody>
</table>

**Minimum Entry Requirements**

- **Nitec** or equivalent: GPA $\geq 2.0$:
  - Aerospace Avionics
  - Aerospace Machining Technology
  - Aerospace Technology
  - Automotive Technology (Heavy Vehicles)
  - Automotive Technology (Light Vehicles)
  - Built Environment (Mechanical & Electrical Services)
  - Built Environment (Vertical Transportation)
  - Electrical Technology (Lighting & Sound)
  - Electrical Technology (Power & Control)
  - Facility Technology (Air-Conditioning & Refrigeration Technology)
  - Facility Technology (Landscaping Services)
  - Facility Technology (Mechanical & Electrical Services)
  - Facility Technology (Vertical Transportation)
  - Mechanical Technology
  - Mechatronics
  - Rapid Transit Technology

- **Higher Nitec** or equivalent:
  - Civil & Structural Engineering Design
  - Electrical Engineering
  - Engineering with Business
  - Facility Management
  - Facility Systems Design
  - Landscape Management & Design
  - Marine Engineering
  - Marine & Offshore Technology
  - Mechanical Engineering
  - Mechatronics Engineering
  - Offshore & Marine Engineering Design
  - Precision Engineering
  - Process Plant Design
  - Rapid Transit Engineering

**Note:**
- Applicants with any *Nitec/Higher Nitec* qualifications, relevant work experience and support from their employers that are participants of the WSDip programme can also apply. Non-ITE graduates with relevant experience and strong employer endorsement will also be considered. Non-ITE graduates without GCE ‘O’ Level qualification should preferably have Workplace Literacy & Numeracy (WPLN) Level 5.
- Applicants must be free from colour appreciation deficiency.
LOCATION OF ITE HEADQUARTERS & COLLEGES

ITE College West at Choa Chu Kang
ITE Headquarters and ITE College Central at Ang Mo Kio
ITE College East at Simei
LOCATION OF ITE HEADQUARTERS & COLLEGES

ITE HEADQUARTERS
2 Ang Mo Kio Drive, Singapore 567720

Customer & Visitor Centre
Block A Level 2
- Tel: 1800 2222 111
- Email: training@ite.edu.sg
- www.ite.edu.sg

ITE COLLEGE CENTRAL
A College of Creativity & Innovation
2 Ang Mo Kio Drive, Singapore 567720

Customer & Visitor Centre
Block A Level 2
- Tel: (65) 6590 2211
- www.ite.edu.sg/colleges/ite-college-central
- Opening hours: 8.30 am to 6.00 pm

How to Get There
Nearest MRT Stations: Ang Mo Kio (NS16) and Yio Chu Kang (NS15)
Bus Services to ITE Headquarters and ITE College Central:
  SBS Transit: 50, 72, 88 and 159 (alight along Ang Mo Kio Avenue 5)
              45 (alight along Ang Mo Kio Avenue 10)

Full-Time ITE Courses Offered at ITE College Central

School of Business & Services
- Higher Nitec in Accounting (2 years)
- Higher Nitec in Early Childhood Education
- Higher Nitec in Event Management
- Higher Nitec in Financial Services
- Higher Nitec in Human Resource & Administration
- Higher Nitec in Maritime Business
- Higher Nitec in Passenger Services
- Higher Nitec in Retail & Online Business
- Higher Nitec in Sport Management (2 years)
- Higher Nitec in Accounting (3 years)
- Higher Nitec in Sport Management (3 years)
- Nitec in Business Services
- Nitec in Floristry
- Nitec in Retail Services

School of Design & Media
- Higher Nitec in Architectural Technology
- Higher Nitec in Filmmaking (Cinematography)
- Higher Nitec in Interactive Design
- Higher Nitec in Motion Graphics
- Higher Nitec in Performance Production
- Higher Nitec in Visual Effects
- Higher Nitec in Visual Merchandising
- Nitec in Architectural Technology
- Nitec in Digital Animation
- Nitec in Fashion Apparel Production & Design
- Nitec in Interior & Exhibition Design
- Nitec in Product Design
- Nitec in Video Production
- Nitec in Visual Communication

School of Electronics & Info-Comm Technology
- Higher Nitec in Broadcast & Media Technology
- Higher Nitec in Electronics Engineering (2 years)
- Higher Nitec in Cyber & Network Security (2 years)
- Higher Nitec in Games Art & Design
- Higher Nitec in Games Programming & Development
- Higher Nitec in IT Applications Development (2 years)
- Higher Nitec in IT Systems & Networks (2 years)
- Higher Nitec in Electronics Engineering (3 years)
- Higher Nitec in Cyber & Network Security (3 years)
- Higher Nitec in IT Applications Development (3 years)
- Higher Nitec in IT Systems & Networks (3 years)

School of Engineering
- Higher Nitec in Engineering with Business
- Higher Nitec in Marine Engineering
- Higher Nitec in Marine & Offshore Technology
- Higher Nitec in Mechanical Engineering
- Higher Nitec in Mechatronics Engineering
- Higher Nitec in Offshore & Marine Engineering Design
- Higher Nitec in Precision Engineering
- Higher Nitec in Robotics & Smart Systems
- Nitec in Aerospace Avionics
- Nitec in Aerospace Machining Technology
- Nitec in Aerospace Technology
- Nitec in Digital & Precision Engineering
- Nitec in Mechanical Technology
- Nitec in Mechatronics & Robotics
ITE COLLEGE EAST
A College of Enterprise & Innovation
10 Simei Avenue, Singapore 486047
Customer & Visitor Centre
Administration Block Level 1
• Tel: (65) 6590 2262
• www.ite.edu.sg/colleges/ite-college-east
• Opening hours: 8.30 am to 6.00 pm

How to Get There
Nearest MRT Station: Expo (CG1/DT35)
Bus Services to ITE College East:
Go-Ahead: 118 (alight along Simei Ave)
2 (alight along Upper Changi Road)
12 (alight along Upper Changi Road East)
SBS Transit: 31 (alight along Simei Ave)
24, 38 (alight along Upper Changi Road East)

Full-Time ITE Courses Offered at ITE College East
School of Applied & Health Sciences
• Higher Nitec in Biotechnology
• Higher Nitec in Chemical Technology
• Higher Nitec in Paramedic & Emergency Care
• Nitec in Applied Food Science
• Nitec in Chemical Process Technology
• Nitec in Community Care & Social Services
• Nitec in Nursing
• Nitec in Opticianry

School of Business & Services
• Higher Nitec in Accounting (2 years)
• Higher Nitec in Beauty & Wellness Management
• Higher Nitec in Event Management
• Higher Nitec in Human Resource & Administration
• Higher Nitec in International Logistics
• Higher Nitec in Passenger Services
• Higher Nitec in Sport Management (2 years)
• Higher Nitec in Accounting (3 years)
• Higher Nitec in Sport Management (3 years)
• Nitec in Beauty & Wellness
• Nitec in Business Services
• Nitec in Hair Fashion & Design
• Nitec in Logistics Services
• Nitec in Retail Services

School of Electronics & Info-Comm Technology
• Higher Nitec in Business Information Systems (2 years)
• Higher Nitec in Cyber & Network Security (2 years)
• Higher Nitec in Electronics Engineering (2 years)
• Higher Nitec in IT Applications Development (2 years)
• Higher Nitec in IT Systems & Networks (2 years)
• Higher Nitec in Business Information Systems (3 years)
• Higher Nitec in Cyber & Network Security (3 years)
• Higher Nitec in Electronics Engineering (3 years)
• Higher Nitec in IT Applications Development (3 years)
• Higher Nitec in IT Systems & Networks (3 years)

School of Engineering
• Higher Nitec in Civil & Structural Engineering Design
• Higher Nitec in Electrical Engineering
• Higher Nitec in Facility Management
• Higher Nitec in Integrated Mechanical & Electrical Design
• Higher Nitec in Landscape Management & Design
• Higher Nitec in Mechanical Engineering
• Nitec in Built Environment (Mechanical & Electrical Services)
• Nitec in Built Environment (Vertical Transportation)
• Nitec in Electrical Technology (Lighting & Sound)
• Nitec in Electrical Technology (Power & Control)
• Nitec in Mechanical Technology
• Nitec in Urban Greenery & Landscape
ITE COLLEGE WEST
A College of Service & Innovation
1 Choa Chu Kang Grove, Singapore 688236
Customer & Visitor Centre
Block 2 Level 1
• Tel: (65) 6590 2628
• www.ite.edu.sg/colleges/ite-college-west
• Opening hours: 8.30 am to 6.00 pm

How to Get There
Nearest MRT Stations: Bukit Panjang (DT1) and Choa Chu Kang (NS4)
Nearest LRT Station: Teck Whye LRT (BP4)
Bus Services to ITE College West:
  SBS Transit: 160 (alight along Bukit Batok Road)
  974, 974A (alight along Choa Chu Kang Way)
  SMRT Buses: 67, 67A, 188, 188E, 976, 991 (alight along Choa Chu Kang Way)
  983, 983A (alight along Choa Chu Kang Grove)
  180, 180A, 187, 188, 982E, 985 (alight along Bukit Batok Road)

Full-Time ITE Courses Offered at ITE College West

School of Business & Services
• **Higher Nitec** in Accounting (2 years)
• **Higher Nitec** in Leisure & Travel Operations
• **Higher Nitec** in Service Management
• **Higher Nitec** in Sport Management (2 years)
• **Higher Nitec** in Accounting (3 years)
• **Higher Nitec** in Sport Management (3 years)
• **Nitec** in Business Services
• **Nitec** in Retail Services
• **Nitec** in Travel & Tourism Services

School of Electronics & Info-Comm Technology
• **Higher Nitec** in AI Applications
• **Higher Nitec** in Cyber & Network Security (2 years)
• **Higher Nitec** in Data Engineering
• **Higher Nitec** in Electronics Engineering (2 years)
• **Higher Nitec** in IT Applications Development (2 years)
• **Higher Nitec** in IT Systems & Networks (2 years)
• **Higher Nitec** in Security System Integration (2 years)
• **Higher Nitec** in Cyber & Network Security (3 years)
• **Higher Nitec** in Electronics Engineering (3 years)
• **Higher Nitec** in IT Applications Development (3 years)
• **Higher Nitec** in IT Systems & Networks (3 years)
• **Higher Nitec** in Security System Integration (3 years)

School of Engineering
• **Higher Nitec** in Automotive Engineering
• **Higher Nitec** in Electrical Engineering
• **Higher Nitec** in Facility Management
• **Higher Nitec** in Mechanical Engineering
• **Higher Nitec** in Mechatronics Engineering
• **Higher Nitec** in Rapid Transit Engineering
• **Nitec** in Automotive Technology
• **Nitec** in Built Environment (Mechanical & Electrical Services)
• **Nitec** in Electrical Technology (Lighting & Sound)
• **Nitec** in Electrical Technology (Power & Control)
• **Nitec** in Mechanical Technology
• **Nitec** in Mechatronics & Robotics
• **Nitec** in Rapid Transit Technology

School of Hospitality
• **Higher Nitec** in Culinary Arts
• **Higher Nitec** in Hospitality Operations
• **Higher Nitec** in Pastry & Baking
• **Nitec** in Asian Culinary Arts
• **Nitec** in Hospitality Operations
• **Nitec** in Pastry & Baking
• **Nitec** in Western Culinary Arts
Note: The information contained in this prospectus is correct as of November 2021. ITE reserves the right to amend the contents without prior notice.