For discussion on
19 February 2021

Legislative Council
Panel on Commerce and Industry

Latest Development of the Testing and Certification Industry

Purpose

This paper updates Members on the latest development of Hong Kong's testing and certification ("T&C") industry in recent years.

Background

2. The local T&C industry has been providing testing[1], inspection[2] and certification[3] services to various sectors. It plays a vital role in our daily life and helps assure the safety and quality of products as well as their compliance with international and regional standards. Its quality assurance work also supports the manufacturing, export and other services, which is an integral part of the supply chain, making significant contributions to Hong Kong's external trade. Professionalism, integrity, being responsive to market needs and having a robust accreditation system are all cornerstones of the success of the industry. During the outbreak of the novel coronavirus disease ("COVID-19"), the industry has stayed committed to its duty as a gatekeeper, not only to ensure the quality of various anti-epidemic items, but also to set up local testing facilities in relation to face masks, and to provide COVID-19 nucleic acid testing services to assist the public in fighting the virus.

3. The Hong Kong Council for Testing and Certification ("HKCTC") was established in 2009 to advise the Government on the overall development strategy of the industry. Its secretariat support is provided by the Innovation

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[1] Testing refers to the determination of one or more characteristics of an object of conformity to requirements according to a procedure, such as testing the colour fastness and shrinkage of clothing for preparing care labelling.

[2] Inspection is the examination of a product design, product, process or installation and determination of its conformity to requirements on the basis of professional judgement, including using specific equipment. For example, an overseas buyer engages an inspection body to check a batch of products at the factory before shipment to ensure that their production complies with the buyer's specifications.

[3] Certification means a third-party issuing a certificate to confirm that a product, process, system or person satisfies a set of specified requirements. For example, a certification body issues a certificate to an organisation confirming its conformity with the requirements of ISO 9001 Quality Management System standard.

and Technology Commission ("ITC"). The HKCTC has been adopting a market-oriented approach to promote the industry's development. In addition to providing accreditation services to the local laboratories, inspection bodies and certification bodies through the Hong Kong Accreditation Service ("HKAS"), the ITC is committed to fostering an environment conducive to the development of the T&C industry and opening up further development opportunities for the industry.

Industry Profile

4. The local T&C industry has seen an overall growth in recent years, which however slightly eased in 2019. In that year, the overall annual economy contracted by 1.2% and the total exports of goods registered a decline of 4.7% in real terms, attributable to a softened global economic growth, intensified US-Mainland trade tensions, as well as dampened economic sentiment due to local social incidents. Figures relating to the local private independent establishments engaging in testing, inspection and certification activities in recent years are as follows -

Year	**2015**	**2016**	**2017**	**2018**	**2019**
Number of establishments	640	670	720	730	770
Number of persons engaged	13 580	13 960	14 300	14 620	14 790
Total business receipts	13,959 million	14,138 million	15,021 million	15,550 million	14,947 million
Direct economic contribution to Hong Kong	7,017 million	7,325 million	7,516 million	7,675 million	7,338 million

5. According to the 2019 statistics provided by the Census and Statistics Department in February this year, inspection, certification and testing accounted for 16.6% (i.e. $2,484 million), 3.3% (i.e. $488 million)], and 65.4% (i.e. $9,778 million) of the total business receipts of the industry respectively[4]. Among the testing services, the major income sources were medical testing (28.0%), toys and games (21.8%), textiles, clothing and footwear (16.7%), electrical products and telecommunications equipment (14.7%), as well as construction materials (9.9%). Compared to 2018, the industry's business receipts in 2019 dropped by $603 million (from $15,550 million to $14,947 million), mainly due to the decline in the business receipts of medical testing of $448 million.

[4] Income from other services (for example: consulting service fees) accounted for 14.7% of the total business receipts.

Accreditation Service

6. Accreditation is an official recognition of the competence of a T&C establishment in carrying out specific conformity assessment tasks. The HKAS under the ITC provides accreditation service in Hong Kong. The HKAS provides accreditation for local laboratories, inspection bodies and certification bodies through voluntary accreditation schemes to confirm their competence to perform testing, inspection and certification activities in accordance with international standards. For services currently provided by HKAS, please refer to **Enclosure I**.

7. The HKAS has been actively participating in activities of the international accreditation community and its status has acquired worldwide recognition. In 2017 to 2018, Hong Kong became a key member of the steering committee for the merger of two regional accreditation cooperation bodies (i.e. the Asia Pacific Laboratory Accreditation Cooperation and the Pacific Accreditation Cooperation), playing a part in promoting the official merger of the two organisations into the Asia Pacific Accreditation Cooperation ("APAC") in 2019. The HKAS is also a signatory to the multilateral mutual recognition arrangements of many international accreditation organisations. Under these arrangements, accreditations issued by the HKAS are recognised by accreditation bodies in over 100 economies, including the Mainland, Japan, Korea, Association of South East Asian Nations ("ASEAN"), Australia, New Zealand, European Union, the United States as well as a number of Belt and Road countries, thereby enhancing the recognition of T&C results issued by the accredited organisations.

8. The HKAS has also been introducing new accreditation services in response to market needs. For instance, accreditation service for the COVID-19 nucleic acid tests has been provided since April 2020[5]. To facilitate medical laboratories to apply for accreditation, the HKAS has allocated resources to prioritise the processing of their applications and has compressed the required processing time as far as practicable. As at February 2021, eight hospitals or laboratories have been accredited through the HKAS for the COVID-19 nucleic acid tests and 10 applications are being processed. The accreditation service

[5] Currently the 23 private laboratories on the Department of Health's (DH) list of "Local COVID-19 nucleic acid testing institutions recognised by the Hong Kong SAR Government" (www.coronavirus.gov.hk/pdf/List_of_recognised_laboratories.pdf) have met DH's criteria for the Laboratory Recognition Scheme for SARS-CoV-2 Testing ("LRS"), including having attained certification of SARS-CoV-2 Quality Assurance Programme from the Centre for Health Protection, and attained medical laboratory accreditation from the College of American Pathologists, HKAS or its Mutual Recognition Arrangements ("MRA") partners. Additionally, as private laboratories have accumulated sufficient experience on SARS-CoV-2 nucleic acid test over the last year, to gradually enhance the quality of the services provided by private laboratories, the DH has requested that SARS-CoV-2 nucleic acid test must be included in the scope of accreditation for new applicants to LRS since 1 January this year. For existing private laboratories under LRS, their scope of accreditation must cover SARS-CoV-2 nucleic acid test by 31 December 2021, otherwise they may be disenrolled from DH's list of recognised laboratories.

for medical face mask testing was also launched in April 2020 by the HKAS, and two applications for the accreditation of such testing are in process.

9. This year, the HKAS will actively make preparation to roll out the accreditation service for the "non-destructive testing, surveying, imaging and diagnosis ('NDTSID')" applied in underground utility surveys. Given the complexity and density of underground utilities in the city, even the slightest incident will very likely affect the daily life of the public. The relevant accreditation service will be able to provide a set of standardised methods for testing of underground utilities for government departments, public utilities such as power companies and gas companies as well as other underground utility testing organisations, so that the quality of such testing work can attain a specific level.

10. As mentioned in paragraph 6 above, "accreditation" can help assure the quality of testing, inspection and certification activities; whereas reliable testing depends on instruments calibrated with precision. The Standards and Calibration Laboratory ("SCL") of the ITC is the custodian of Hong Kong's reference standards of physical measurements. In order to ensure that the metrological systems of Hong Kong provide metrological traceability to the International System of Units ("SI"), the SCL provides comprehensive calibration services. The SCL is a signatory of the Mutual Recognition Arrangement ("MRA") drawn up by the International Committee for Weights and Measures ("CIPM"). Through that MRA, calibration certificates issued by the SCL are widely recognised and accepted internationally, making the metrological system of Hong Kong on a par with the international one. In order to ease the burden on T&C organisations, the HKAS and SCL have frozen the fees for their accreditation and calibration services since September 2019 until the end of 2021.

Fostering an Environment Conducive to the Development of the T&C Industry

11. In order to create an environment conducive to the development of the T&C industry, we endeavour to improve the manpower and technological levels of the industry. This is of paramount importance in consolidating the advantages of the industry and maintaining its competitiveness amid an economic environment with more unstable factors.

<u>Improving Manpower</u>

12. Talent is the key to Hong Kong's T&C sector. The HKCTC has been striving to assist the industry in attracting and retaining outstanding practitioners. It set up the Panel on Manpower Development in June 2018 to further strengthen the manpower of the sector.

13. The Panel on Manpower Development has produced a new set of manpower resource package. Apart from presenting the profile and career path of the T&C sector, the brochures and videos, through real-life stories shared directly by the practitioners, enhance young people's understanding of T&C work and the diversified development prospects of the industry. In addition, they facilitate the understanding of the industry's contribution in assuring the safety and quality of various facets of our daily life. All these will help attract young people to join the industry.

14. In order to foster the interests of secondary school students in T&C work, the ITC has been promoting the Chemistry teaching kit for the senior secondary curriculum developed by the HKCTC. Over the past three years, we organised briefings/testing demonstration sessions and workshops for around 750 teachers and students to learn the basic concepts of chemical testing and gain a deeper understanding of T&C work through conducting experiments. Besides, we are now developing a set of teaching kit suitable for junior secondary school students which is tentatively scheduled to be launched at the end of this year. In addition, the HKCTC Secretariat has been organising career talks and laboratory visits for secondary school and university students. It has also provided information on internship opportunities at T&C institutions to local universities and the Vocational Training Council ("VTC"), and published it at the HKCTC website. This has facilitated students' access to and participation in the internship opportunities.

15. The local tertiary education sector has also continued to offer more courses dedicated to testing and certification, ranging from higher diploma to postgraduate levels, to meet the needs of people from different backgrounds and assist the industry to develop a pool of professional talents. For instance, the full-time top-up bachelor of science programme in T&C offered by the Technological and Higher Education Institute of Hong Kong under the VTC was extended to a full-time four-year bachelor's degree programme in September 2018; the Open University of Hong Kong ("OUHK") also launched a new Bachelor of Science (Honours) in Testing Science and Certification programme in September 2018, which is its second full-time four-year bachelor's degree programme dedicated to T&C; the first batch of students of the Bachelor of Science (Honours) in Analytical Sciences for Testing and Certification programme of the Hong Kong Polytechnic University graduated in 2019; and the OUHK turned its full-time Bachelor of Science in Food Testing Science programme from a top-up to a four-year course in the 2020/21 academic year. A list of programmes dedicated to T&C offered by post-secondary institutions is set out in **Enclosure II**. Besides, the Government has regularised the Study Subsidy Scheme for Designated Professions/Sectors ("SSSDP") starting from the 2018/19 academic year, to subsidise students to pursue designated full-time locally accredited self-financing undergraduate programmes in selected disciplines with keen manpower demand. At present, SSSDP covers OUHK's

Bachelor of Engineering (Honours) in Testing and Certification and Bachelor of Science (Honours) in Testing Science and Certification programmes. Its coverage will be extended to OUHK's Bachelor of Science (Honours) in Food Testing Science programme in the 2021/22 academic year.

16. Regarding professional qualifications, materials engineers working in testing, inspection and certification bodies are responsible for ensuring the quality of construction materials. The Materials Division of the Hong Kong Institution of Engineers ("HKIE") has relaxed the academic requirements for its professional qualification since November 2018. Those who possess recognised academic qualifications in building, civil, chemical, environmental or structural engineering disciplines with two subjects related to construction engineering materials in their bachelor's degree or above programmes may apply to the HKIE Materials Division for professional qualification.

17. Integrity is the cornerstone of Hong Kong's T&C industry. The ITC has been collaborating with the Independent Commission Against Corruption ("ICAC") for many years in organising seminars on integrity. The purpose is to uphold the professional ethics of practitioners and keep them abreast of the dedicated Corruption Prevention Guide for the T&C Industry developed by the ICAC in 2011 in consultation with the HKCTC, as well as the latest anti-corruption measures. In the past three years, a total of over 800 participants were attracted to join these seminars. The HKCTC has also been co-organising professional seminars on various topics such as construction materials certification, information security certification, food safety, testing of gemstones, etc., with other institutions so that practitioners can be kept informed of the latest information on different aspects.

18. To encourage a culture of continuous manpower enhancement in the industry, the Panel on Manpower Development is planning to organise an award scheme to give due recognition to T&C organisations which actively promote talent training and professional development. The scheme will also acclaim outstanding T&C practitioners who strive for continuous learning and improvement, and make distinguished contribution to improving service quality and productivity of their organisations. The HKCTC Secretariat is preparing the details of the award scheme which is expected to be open for applications in mid-2021.

Upgrading Technological Levels

19. We encourage the T&C sector to adopt new technologies to enhance their business operations. In March 2019, the HKCTC organised a seminar to introduce the latest technological development in areas such as robotics and warehouse automation system. It also introduced the ways new technologies could be applied to enhance the efficiency of the sample preparation process, warehouse management, etc. The Innovation and Technology Support

Programme under the Innovation and Technology Fund ("ITF") has been assisting the industry to carry out the relevant research and development. In addition, the Technology Voucher Programme ("TVP") under the ITF has been subsidising T&C enterprises to use technological services and solutions to enhance their productivity, or upgrade or transform their business processes. To facilitate the setting up of local testing facilities in relation to medical face masks, local laboratories engaging in consumer product testing and having the capability of providing accredited services of microbiological test, flammability test, physical test, etc., are allowed to apply for funding support under the TVP since April 2020 for setting up local testing facilities for performance evaluation of medical face masks or materials used in the production of such masks.

20. To upgrade the technical capabilities of laboratories, the Government Laboratory, from 2018-19 to 2020-21, organised a total of nine proficiency testing programmes, covering different areas in food, Chinese medicine and Chinese medicinal oils. These programmes assess the testing competence of the laboratories by comparing the testing results among them. According to the international standards for laboratory accreditation, participation in proficiency testing is one of the mandatory requirements for obtaining laboratory accreditations.

Open Up Further Opportunities for the T&C Industry

21. Ongoing efforts are being made to open up further business opportunities for the T&C industry. In addition to the continuous leverage on the framework of the *Mainland and Hong Kong Closer Economic Partnership Arrangement ("CEPA")*, we have also been studying how to leverage both the Guangdong-Hong Kong-Macao Greater Bay Area ("Greater Bay Area") and the Belt and Road platforms in recent years as summarised in the ensuing paragraphs.

CEPA

22. Since the signing of *CEPA Supplement VII* in 2010, the Mainland has been gradually opening up its T&C market to Hong Kong. This includes allowing testing organisations in Hong Kong to cooperate with designated Mainland certification bodies to undertake testing for products requiring China Compulsory Certification ("CCC")[6].

23. According to the *CEPA Agreement on Economic and Technical* Cooperation signed in June 2017, a Hong Kong certification body became a

[6] CCC is a mandatory product certification system to ensure the quality and safety of products that tap into the Mainland China market are up to domestic standards. CCC mark is required for both Chinese manufactured and foreign imported goods listed on the CCC catalogue (i.e. covering 17 product types).

National Certification Body (NCB) of China under the International Electrotechnical Commission System of Conformity Assessment Schemes for Electrotechnical Equipment and Components ("IECEE")[7] in March 2020. As an NCB of China under the IECEE, the certificates and test reports that the certification body issues within the scope of the International Electrotechnical Commission ("IEC") standards are recognized by around 60 IECEE Member Bodies under the IECEE CB Scheme[8].

24. In December 2018, the Mainland and Hong Kong, by way of Exchange of Letters, revised the CEPA Agreement on Trade in Services ("Services Agreement") to expand the scope of CCC testing that can be undertaken by Hong Kong testing organisations. The scope was extended from CCC products processed or manufactured in Hong Kong or China (Guangdong) Pilot Free Trade Zone ("Guangdong FTZ") to CCC products processed or manufactured in Hong Kong or in the whole Mainland.

25. In November 2019, the Mainland and Hong Kong signed an Amendment to the Services Agreement to further open up the said scope to cover CCC products processed or manufactured in any place (including places outside China). In addition, the geographical coverage of CCC factory inspection that can be undertaken by certification bodies in Hong Kong in collaboration with designated Mainland organisations has been expanded from the CCC product manufacturers located in the Guangdong FTZ to the CCC product manufacturers in the whole Mainland. A new task that can be undertaken by certification bodies in Hong Kong has also been added, i.e. the selection of test samples at CCC certified factories in the whole Mainland. These new liberalisation measures came into effect on 1 June 2020. As of now, nine Hong Kong testing organisations have been accredited by the HKAS for undertaking CCC testing. Seven of these have entered into co-operation agreements with designated Mainland organisations. Among these seven organisations, six of them renewed or newly signed a cooperation agreement with a designated Mainland organisations in December 2020. In addition to the product categories of toys, audio and video apparatus, information technology equipment, and lighting fixtures, the scope of cooperation testing has also been extended to the product category of electrical switches, protective devices and connection devices.

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[7] IECEE is a multilateral certification system. It covers 22 categories of electrical and electronic equipment and testing services.

[8] The CB system is an international mutual recognition system under IECEE and is based on IEC international standards. It is committed to achieving international mutual recognition of electrotechnical products' test results, assisting electrotechnical products to enter the market of each member country, avoiding duplicate testing and facilitating international trade at the same time.

The Greater Bay Area and the Belt and Road

26. Promulgated in February 2019, the *Outline Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area* reinforces that the implementation of CEPA liberalisation measures for Hong Kong's services sector, including testing and certification, will be deepened. It also mentions "supporting Greater Bay Area enterprises in using services of Hong Kong, such as inspection, testing and certification". In August 2020, the third Joint Conference on Advancing Hong Kong's Full Participation in and Contribution to the Belt and Road Initiative was held. It was participated by the Hong Kong Special Administrative Region Government, the National Development and Reform Commission and relevant Mainland ministries. At the meeting, both sides exchanged ideas on promoting the participation of Hong Kong's T&C sector in testing work, including undertaking CCC tests and giving consideration to carrying out pilots at those overseas Economic and Trade Co-operation Zones set up by the Mainland in Belt and Road countries, thereby bringing Hong Kong's soft power into continuous play.

27. Hong Kong's T&C industry is positioned to seize the new opportunities arising from the Greater Bay Area on two fronts. On the "internal" front, the local T&C industry, which possesses various strengths such as professional integrity and the brand of "Tested in Hong Kong, Certified in Hong Kong", coupled with our strong technical competence as well as highly effective and agile services, can better serve the huge consumer goods market in the Greater Bay Area and help ensure the safety and quality of the products within the region. On the "external" front, with robust intellectual property protection in Hong Kong, manufacturers can rest assured to conduct prototype testing for their new products in the city. In addition, as local T&C organisations are familiar with the needs of overseas markets and acclaimed by buyers across the globe, our services can enable enterprises in the Greater Bay Area to showcase their product quality to the outside world, which can in turn help them "go global" and access the international market.

28. We have also been publicising Hong Kong's T&C services in the Greater Bay Area. For example, the HKCTC has been inviting the local industry to jointly participate in the China Hi-tech Fairs[9] held in Shenzhen since 2016. Since 2019, we have set up booths in the trade fairs organised in Guangzhou and Shenzhen by the Hong Kong Trade Development Council (including the "SmartHK" in 2019, the "Chic Hong Kong" in 2020, and the "China International Fashion Fair (Greater Bay Area Fair)" to be held in 2021) to promote the strengths of Hong Kong's T&C services to enterprises in the Greater Bay Area.

[9] The booth rental, design and production costs were borne by the HKCTC, whereas the T&C bodies deployed their staff at the booth to assist in promoting the industry's strengths.

29. In November 2020, the HKCTC Secretariat invited T&C organisations to express their views on how to leverage the development opportunities arising from the Greater Bay Area and the Belt and Road Initiative. Among the replies received, the majority supported the HKCTC to step up publicity in the Greater Bay Area, and expressed interests in joining on-site sharing sessions or trade fairs targeting individual Greater Bay Area cities or product types after the pandemic has subsided. As for the Belt and Road Initiative, the respondents expressed their interests in participation (especially in the Southeast Asian region), and that more time was needed to identify where the opportunities lay.

30. In January this year, a four-month digital promotion scheme was rolled out on a number of popular digital platforms in the Mainland. Considering the views of the industry expressed in November last year, the scheme targeted manufacturers and traders of products like food, cosmetics, other consumer goods, Chinese medicines, medical devices, construction materials, etc., so as to publicise the strengths of Hong Kong's T&C industry.

Promotion to the General Public

31. In order to enhance public understanding of the important role played by T&C services in assuring product safety and quality, more publicity and promotion initiatives have been carried out via digital channels and in a lively manner in recent years, with a view to stimulating consumer demand for tested and certified products.

32. To convey the importance of T&C to the general public in a lively manner, a series of 30 comic strips were produced in 2019 and published in a free newspaper, two newspaper mobile apps and our comic booklet. During the pandemic, members of the public have a higher demand for sanitisation and protection products, and have become more aware of the importance of professional T&C services. Two waves of advertorials were published in two mobile news apps in April to May 2020 and August to September 2020 respectively. The articles therein introduced the basic concepts of T&C and illustrated the importance of various T&C services in assuring product quality and safety. More advertorials will be published via mobile channels in the coming months.

Advice Sought

33. Members are invited to note the latest development of the T&C industry as set out in this paper.

Innovation and Technology Bureau
Innovation and Technology Commission
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Enclosure I

Services Provided by the Hong Kong Accreditation Service

- Hong Kong Accreditation Service ("HKAS") provides accreditation for testing and certification bodies located in Hong Kong, through its three voluntary schemes – the Hong Kong Laboratory Accreditation Scheme ("HOKLAS") , Hong Kong Inspection Body Accreditation Scheme ("HKIAS") and Hong Kong Certification Body Accreditation Scheme ("HKCAS").

- The primary service targets of the HOKLAS are testing laboratories. Accreditation services available under this scheme cover the following testing scope:

  - Chemical test, e.g. analyses of gold and silver fineness as well as gas products;
  - Chinese medicine, e.g. analyses of pesticide residuals and heavy metal in Chinese medicine;
  - Construction materials, e.g. physical tests on concrete, cement and steel;
  - Electrical and electronic product, e.g. product safety and EMC test;
  - Environmental testing, e.g. air quality and wastewater test;
  - Food, e.g. composition analysis and contaminant test;
  - Forensic testing, e.g. forensic analyses of toxicity and DNA;
  - Medical testing, e.g. clinical microbiology and haematology examination;
  - Veterinary testing, e.g. anatomical pathology examination;
  - Proficiency testing providers, e.g. proficiency testing for medical testing and chemical testing;
  - Pharmaceutical products, e.g. microbiological examination and chemical composition analysis for pharmaceutical products;
  - Physical and mechanical testing, e.g. safety testing of consumer products and gemstone testing;
  - Reference material producers, e.g. production of food and reference material of Chinese medicine;
  - Testing Required by the China Compulsory Certification System (CCC), e.g. relevant testing for toys and household products;
  - Textiles and garments, e.g. flammability test and performance test for garments;
  - Toys and children's products, e.g. chemical and physical tests for toys;

- Calibration service,e.g. calibration of balance, weights and thermometer; and
- Miscellaneous, e.g. testings of cigarette and petroleum products.

- Accreditation for inspection services available under the HKIAS includes:

  - inspection of consumer products;
  - inspection of construction products;
  - inspection of indoor air quality; and
  - scene of crime investigation.

- Accreditation for services provided by certification bodies under the HKCAS includes:

  - Management system certification, including:
    - Quality Management System Certification (ISO 9001)；
    - Environmental Management System Certification (ISO 14001) ；
    - Energy Management System Certification (ISO 50001) ；
    - Occupational Health and Safety Management System Certification (ISO 45001) ；
    - Food Safety Management System Certification (ISO 22000) ；
    - Information Security Management System Certification (ISO 27001);
    - Residential Care Homes (Elderly Persons) Service Providers' Management System Certification;

  - Product certification, including:
    - construction materials and products;
    - consumer products;
    - food;
    - composite wood products;
    - Chinese medicine; and

  - Greenhouse gas (GHG) validation and verification.

Enclosure II

Tertiary Programmes Dedicated to Testing and Certification in Hong Kong

Institution	Programme Name
Master's Degree	
The Chinese University of Hong Kong	MSc in Accreditation Chemistry
Hong Kong Baptist University	MSc in Analytical Chemistry
The Hong Kong University of Science and Technology	MSc in Analytical Chemistry
Bachelor's Degree	
The Open University of Hong Kong	BSc (Hons) in Product Design, Testing and Certification
	BEng (Hons) in Testing and Certification
	BSc (Hons) in Testing Science (Food)
	BSc (Hons) in Testing Science and Certification
Hong Kong Baptist University	BSc (Hons) in Analytical and Testing Sciences
The Hong Kong Polytechnic University	BSc (Hons) in Analytical Sciences for Testing and Certification
Technological and Higher Education Institute of Hong Kong under the Vocational Training Council	BSc (Hons) in Testing and Certification
Higher Diploma	
Vocational Training Council	Higher Diploma in Analytical Science