



**Hong Kong Association for  
Testing, Inspection and Certification Ltd.  
Professional Certification Scheme for Testing Personnel**

**CC10  
CERTIFICATION HANDBOOK  
QUALITY ASSURANCE**

First Issue  
Issued by Hong Kong Association for  
Testing, Inspection and Certification Limited

Secretariat: G. P. O. Box 471, Hong Kong

This document is the property of Hong Kong Association for Testing, Inspection and Certification Limited. It shall not be reproduced in whole or in part without the written approval of the Chairperson of HKTIC.



## **Table of Content**

Section	Section Title	Page
	Foreword	
1	General	1
2	Scope of Certification	1
3	Eligibility for Certification	1
4	Examination Procedure	3
5	Application Procedure for Certification/Examination and Fees	5
6	Appeals	9
7	Obligations	11
Appendix 1	Examination Syllabus and Specimen Questions for Certified Testing Professional	12
Appendix 2	Training Courses approved by the Certification Board	17
Appendix 3	References	19



## FOREWORD

The Professional Certification Scheme for Testing Personnel (PCSTP) is a comprehensive scheme which provides examination and certification for individuals seeking to demonstrate their knowledge and/or competence in their field of operation.

The Scheme is developed under HKTIC and managed by the Certification Board (CB), which is responsible for the granting, reviewing and revising the personnel certification titles and requirements in accordance with the prevailing demand of the testing industries served by the Scheme. The Certification Board, in turn, may appoint specialist working committees as it deems necessary to oversee specific parts of the Scheme.

The sole criteria for certification of personnel engaged in quality assurance are given in this document (and any subsequent amendments) and no other criteria will be applied. Certification is not conditional on the candidate applying for other services or membership from HKTIC or any other groups or associations.

The benefits of certification include:

1. recognition and prestige for the individual and creation of a competitive advantage over non-certified individuals in the same field;
2. enhanced employment opportunities;
3. establishment of a professional standard for individuals in a particular testing field;
4. assistance to employers in making more informed recruitment decisions;
5. a more productive and highly trained workforce for employers;
6. enhanced professional impression on customers;
7. assistance to clients in making informed decisions about qualified providers;
8. protection of the general public from using incompetent and unfit practitioners; and
9. assurance of the general public of the accuracy and validity of testing results.



## **Requirements of Certification of Personnel Engaged in Quality Assurance**

### **1. General**

- 1.1. This document prescribes procedures by which personnel may be examined and, if successful, certified for quality assurance.

### **2. Scope of Certification**

- 2.1. The level of certification available is
  - 2.1.1. Certified Testing Professional.

### **3. Eligibility for certification**

- 3.1. Candidates shall have a combination of education, training and experience adequate to ensure that they have the potential to understand the principles and procedures of the applicable methods.
- 3.2. Academic qualification and experience
  - 3.2.1. Certified Testing Professional (CTP) (any one of the requirements (a) to (c)).
    - (a) The candidate shall have a bachelor's degree and with no less than three years of relevant experience, or
    - (b) Candidate without a degree shall have no less than 15 years of relevant experience of which 5 years shall be at managerial positions, or
    - (c) Candidates shall have any other qualifications and experience deemed as equivalent.



### 3.3. Training

#### 3.3.1. Certified Testing Professionals

Candidate shall

(a) (any one of the following:)

(i) provide certificates of achievement (satisfactory results in end-of-course evaluation) in training courses approved by the Certification Board in respective competence requirements; or

(ii) obtain satisfactory results in PCSTP examinations as arranged by the Certification Board; or

(iii) have no less than 15 years of relevant experience, of which 5 years shall be at managerial positions; and

(b) obtain satisfactory results in professional assessment by interview.

Details of approved training courses are available at the website [www.hktic.org](http://www.hktic.org).

### 3.4. Competence requirements for Certified Testing Professional

#### 3.4.1. Management requirements

- Management skills
- Integrity management

#### 3.4.2. Quality requirements

- Laboratory management in compliance with ISO/IEC 17025
- Laboratory safety
- Statistical treatment of interlaboratory and intralaboratory comparison study

#### 3.4.3. Technical requirements

- Documentation of quality management system
- Implementation of quality management system
- Requirements of equipment calibration (external)



#### **4. Examination Procedure**

4.1. A candidate who can provide certificates of achievement in training courses in all competence requirements may be exempted from PCSTP examinations.

4.2. Partial exemption for PCSTP examinations is not allowed.

4.3. No exemption is permitted for professional assessment by interview for Certified Testing Professional candidates.

4.4. Examinations consist of

4.4.1. Written examination; and/or

4.4.2. Professional assessment by interview (for Certified Testing Professionals only).

4.5. Candidates must satisfy the examiner(s) in all parts. Details of the examination format follow the syllabus and specimen examination questions as given in Appendix 1.

4.6. Types of questions

4.6.1. Multiple choice questions

4.6.2. Short answer questions

4.6.3. Open-ended questions

4.7. Examination for Certified Testing Professional

The examination will comprise written examination and professional interview.

4.7.1. Written examination will cover the following:

- Management requirements
- Quality requirements
- Technical requirements

4.7.2. Professional assessment by interview

- The interview will cover all certification criteria.

4.7.3. Time length of examinations

- Written examination – 3 hours
- Professional assessment by interview – 30 to 50 minutes



#### 4.7.4. Weighting for each topic

<u>Topics</u>	<u>Weight (%)</u>
a) Management requirements	10
b) Integrity management	10
c) Laboratory management in compliance with ISO/IEC 17025	15
d) Laboratory safety	10
e) Statistical analysis of inter and intralaboratory comparison study	10
f) Documentation of a quality management system	15
g) Implementation of a quality management system	20
h) Requirements of equipment calibration (external)	10

The weight of each topic shall not deviate from the pre-set percentage by more than 5%.

#### 4.7.5. Marking system

- Model answer shall be set for each multiple choice questions. Marks will be given for correct answers.
- Suggested answers shall be set and marks should be allocated according to key points of answers for short questions. Marks for each key point should be pre-set. Marks would be given to answers with meanings which match the suggested answers as judged by the marker.
- The marking system for open-ended questions shall be the same as that for short questions.

#### 4.7.6. Passing Mark

- The passing mark for each section shall typically not be less than 40% and the typical overall passing mark is 60% for the written examination.
- A candidate must pass both the written examination and the interview.



## 5. Application Procedure for Certification/Examination and Fees

### 5.1. Application form

5.1.1. Applications must be made on line at [www.hktic.org](http://www.hktic.org).

5.1.2. The application form asks for specific details of experience and training and must be signed confirming that these details are accurate and supported by such other documents as may be necessary to confirm that the candidate is eligible for examination. Filled and signed application form together with supporting documents should be sent to Programme Secretariat by post. Any submitted application and documents become the property of HKTIC and shall not be returned.

5.1.3. The examination dates for applications can only be confirmed after receipt of a properly completed application form and the full fees. In the event of false statements being discovered, any certificate awarded will be revoked and declared null and void.

### 5.2. Application and examination fees

5.2.1. The fee structure is as follows:

Level	Type of application/examination	Fee (HK\$)
CTT	Initial and upgrade application	\$300
	Examination (written), if applicable <sup>Note</sup>	\$500
	Annual subscription fee	\$500
CTP	Initial and upgrade application	\$500
	Examination (written), if applicable <sup>Note</sup>	\$500
	Examination (professional assessment)	\$1,000
	Annual subscription fee	\$500

Note:

Written examination can be exempted under the following conditions by:

- achieving certificates of achievement (satisfactory results in end-of-course evaluation) in approved training courses for all competence requirements; or
- fulfilling the academic requirements and having no less than 15 years of relevant experience, of which 5 years shall be at a managerial position for testing professionals.





5.3. Initial certification, certification upgrade and extension of certification of new category

5.3.1. Candidates who are seeking certification for the first time or for those wishing to upgrade or extend their certification credentials can submit their application on line at [www.hktic.org](http://www.hktic.org) and download the Handbook for the category to be certified.

5.3.2. The candidate shall submit payment, the completed application form and documentation consisting of :

- Academic qualifications;
- Certificates of achievements in appropriate training courses; and
- Any other relevant records

5.3.3. The application is reviewed and evaluated by the Programme Officer for confirmation of acceptance at the requested level of certification. The candidate is notified of the decision and/or date and time of examination where applicable.

5.3.4. The Certification Board may terminate the certification process after reviewing the documents submitted. The application fee would not be refunded.

5.3.5. The examiners involved are independent and do not respond to questions from the candidate. The Programme Officer provides the information about the certification process to the candidate and answers questions he/she may have.

5.3.6. The Certification Board makes the decisions on awarding a pass or fail based primarily upon the recommendation of the examiners.

5.3.7. A candidate applying for Certified Testing Professional is advised to take and pass the written examination before applying for professional assessment by interview.

5.3.8. All certified personnel will be registered in databases and presented as public information on HKTIC website. The candidate is notified of the result of the certification procedure within 30 calendar days after the examination or submission of application. They are entitled to use the designation Certified Testing Technician or Certified Testing Professional, or the abbreviations CTT or CTP as awarded.



#### 5.4. Re-certification

5.4.1. Certified personnel are required to be re-certified after the period of certification validity, which is normally 3 years from the date of issue of the certificate, has expired.

5.4.2. The re-certification process is different from the first certification process. It concentrates on the continuing professional development (CPD) of the individual that has taken part in since the last certification or re-certification. Similar to first certification, certified personnel shall visit the website and download the application form and shall submit payment and completed documentation, consisting of

- Application form for re-certification
- Working experience in the past 3 years and
- Records of Continuing Professional Development (form for recording of CPDU is available at the website [www.hktic.org](http://www.hktic.org))

5.4.3. The Programme Secretariat will review the records of CPD to determine whether the re-certification candidate fulfils the CPD requirements for his/her level.

#### 5.5. Continuing Professional Development (CPD)

5.5.1. The Continuing Professional Development programme supports the ongoing educational and professional development of individuals who have attained certification. The purpose of the CPD program is to:

- enhance ongoing professional development;
- encourage and recognize individualized learning opportunities;
- maintain the value and recognition of the certification; and
- provide a vehicle for attaining and recording professional development activities.

5.5.2. In order to satisfy the CPD programme and maintain an active certification status, certified personnel must accrue and report a minimum of 60 Continuing Professional Development Units (CPDUs) during each three-year certification cycle for Certified Testing Professional. A Certified Testing Professional can accrue the necessary CPDUs by participating in at least two or more activities as listed in PCSTP07. The number of CPDUs accrued for one activity shall not be less than 30 in case the Professional attends only two activities. The expiry date of validity is shown on the certificate.



#### 5.5.3. Continuing Professional Development Units (CPDUs)

- The Continuing Professional Development Units (CPDUs) is the measuring unit used to quantify approved learning and professional service activities. Typically, one CPDU is earned for every one hour spent in a planned, structured learning experience or activity. There is a range of opportunities available to certified personnel to acquire CPDUs through training/education programmes and professional activities covering seminar, industrial discussion group, symposium, training course, etc. PCSTP07 gives guidelines for counting CPDUs.

#### 5.6. Cancellations, Rescheduling, No Shows

- 5.6.1. If a candidate needs to cancel or reschedule an interview or an examination, he/she must do so no later than 2 working days before the scheduled appointment.
- 5.6.2. If he/she fails to notify the Programme Secretariat within the specified time period and/or fails to meet a scheduled examination appointment, he/she forfeits the full certification fee and will have to pay the full certification fee in order to schedule another interview or examination.
- 5.6.3. There are times when extenuating circumstances (e.g. medical emergency, death in immediate family, illness in immediate family) may prevent a candidate from meeting a scheduled interview or examination appointment, resulting in a no show. Should such a situation arise, the candidate must provide explanations along with supporting documentation (e.g. accident report, medical documentation, death certificate) and request to be rescheduled. If he/she does not make contact with the Programme Secretariat within 3 working days following a missed appointment, another fee shall be paid in order to schedule a new appointment. Each request will be reviewed on a case-by-case basis. The candidate is allowed a maximum of one year, from the date of application is approved, to apply for re-examination.



## 6. Appeal

6.1. As a policy, the Certification Board has a procedure for considering appeals against its decision at the end of each stage of the certification cycle.

### 6.2. Written examination recheck

6.2.1. The marks awarded for a particular section may be subject to a recheck. A recheck is carried out to ensure that there have been no arithmetical or clerical errors, that the marks awarded are appropriate and that all the marks to which the candidate is entitled have been included in the final total.

### 6.3. Professional assessment Review

6.3.1. The grounds for such review must clearly identify the element or elements of the assessment for which the review is sought. It must also specify the grounds on which the review is sought and must contain all information, which the candidate requests to be taken into account in the review.

6.3.2. The grounds for a review are:

- the regulations have not been properly implemented.
- the regulations do not adequately cover the candidate's case.
- compassionate or medical circumstances related to the candidate's assessment situation, which were made known by the candidate in writing.
- significant performance related information which the candidate believes was not considered by the examiners.

### 6.4. Appeal for a written examination recheck

6.4.1. A request for a recheck must be received no later than 10 working days after the date of posting of the examination results.

6.4.2. Only a written request for a recheck will be considered.

6.4.3. A fee, as stipulated in the Schedule of Fees, will be charged, which must be included in the request for a recheck. Such fee is non-refundable.

### 6.5. Appeal for a professional assessment review

6.5.1. A request for a review must be received no later than 10 working days after the date of posting of the assessment results.



- 6.5.2. Only written requests will be considered.
- 6.5.3. As the result of the appeal needs to be ratified by the Certification Board, it may take some time before the candidate is notified of the decision.
- 6.5.4. The fee for the professional assessment review is as set forth in the Schedule of Fees. Such fee is non-refundable.
- 6.6. An appeal form for appeal of written examination and professional assessment is available at the website [www.hktic.org](http://www.hktic.org).



## **7. Obligations**

7.1. A certified personnel shall at all times:-

7.1.1. commit to abide with the Regulations as set for the Professional Certification Scheme for Testing Personnel;

7.1.2. pay the fees and charges as determined by the Certification Board;

7.1.3. represent honestly and truthfully to any person concerned that he/she is only certified for activities stated in the scope of certification;

7.1.4. endeavour to ensure that the certification granted by the Certification Board is not used in a misleading manner; and

7.1.5. maintain complete integrity and impartiality in all circumstances.

7.2. Details of the Regulations are given in the document PCSTP01 “Regulations for Professional Certification Scheme for Testing Personnel”.



## APPENDIX 1:

### **Examination syllabus and specimen questions for Certified Testing Professional**

Any aspect of the syllabus may be included in the written examinations or professional assessments. The level of knowledge required by the candidates varies according to the topic. To ensure comprehension by all parties, the following terms have been selected to demonstrate an increasing level of knowledge.

#### **Definitions**

**Outline Knowledge:** The candidate must be familiar with the subject in outline terms. He/She should know that the topic exists and what it is applied to. In the context of methods/techniques the candidate would be expected to know "what it is, what it does" but would not be expected to know the finer points of application of the technique.

**Knowledge:** The candidate must have a working knowledge of the subject and be able to apply it.

**Detailed Knowledge:** The candidate must have a depth of knowledge sufficient to enable him/her to exercise judgment.

#### **Types of questions**

For all multiple-choice questions candidates are required to tick or otherwise indicate the correct answer in the space provided.

Candidates are expected to give a few words, a phrase or a sentence as answers for short answer questions in the space provided.

Candidates are required to explain in depth for open-ended questions.



## **1. Competence requirements of Certified Testing Professional**

### **1.1. Management requirements (Detailed knowledge)**

- 1.1.1. Manager's basic functions
- 1.1.2. Time management
- 1.1.3. Communication in your workplace
- 1.1.4. Team Building – basic understanding of concepts
- 1.1.5. Delegation and management of Generation Y

### **1.2. Quality requirements**

- 1.2.1. Laboratory Management in compliance with ISO/IEC 17025 (Detailed knowledge in all aspects of the standards)

### **1.3. Statistical treatments of inter and intra laboratory comparison data (detailed knowledge)**

- Basic statistics such as student-t, pair-t, F test, normal distribution, ANOVA
- Repeatability and reproducibility of a test method

### **1.4. Laboratory safety (knowledge)**

- General laboratory safety
- Use of fire extinguisher
- Handling and storage of waste, waste disposal
- Licensed chemicals and equipment

### **1.5. Integrity Management (detailed knowledge)**

- Prevention of Bribery Ordinance, Cap. 201
  - Corruption
  - Advantages
- Confidentiality and proprietary right
- Outside employment
- Use of company assets
- Conflict of Interest
- PCSTP01 “Regulations – Professional Certification Scheme of Testing Personnel”
  - Code of ethics in general
  - Code of ethics in relation to employer
  - Code of ethics in relation to public
  - Obligation of Certified Testing Personnel
  - Use of PCSTP symbol and claim of certification status





1.6. Technical requirements (detailed knowledge)

1.6.1. Documentation of a quality management system (detailed knowledge)

- Documentation requirements as stipulated in ISO/IEC 17025
- Define quality policy
- Define organization structure, role of technical management team and quality manager, job descriptions of key personnel
- Procedures in protection of customers' confidential information and prevention of undue pressure and code of conduct
- Policy and procedures of the following:
  - Document control
  - Contract review
  - Subcontracting
  - Purchasing
  - Handling of complaint
  - Control of non-conforming work
  - Corrective actions
  - Preventive actions
  - Record filing system
  - Internal audit
  - Management review
  - Identifying training needs
  - Handling of reference standards and reference materials
- Assist in documentation and evaluate compliance of the procedures of the following:
  - Housekeeping
  - Format of test methods
  - Measurement uncertainty
  - Protection of data manipulation using computers and automated equipment
  - Validation of self developed software
  - Handling of equipment
  - Update of correction factor Reporting of uncertainty and compliance
  - Calibration and performance check of equipment and reference standards
  - Intermediate checks of reference standards and reference materials
  - Sampling
  - Handling of test ad calibration items
  - Quality control



1.6.2. Detailed knowledge of the implementation of a quality management system:

- Define quality objectives and related monitoring
- Maintain and implement document control system and related records
- Maintain or assist in maintenance of supplier and subcontractor list and related evaluation
- Organize customer survey, analyse feedback and take appropriate actions
- Investigate complaint and take appropriate actions
- Evaluate appropriateness of root causes and effectiveness of corrective actions and preventive actions
- Maintain a systematic record filing system
- Plan, prepare checklists and conduct internal audits in ensuring that the laboratory complies with both quality and technical requirements
- Review suitability of the quality management system and overall compliance of the organization with the documented quality management system
- Organize management review and monitor actions arising
- Take measures in improving the overall quality management system and operation
- Establish and assist in establishment of training plan
- Establish and assist in establishment of quality assurance plan such as interlaboratory/ proficiency testing programme and intralaboratory comparison study
- Analyse interlaboratory and intralaboratory comparison data

1.6.3. Knowledge on the external calibration requirements of equipment and reference standards

- Content of a calibration certificate
- Frequency and parameters for calibration of general pieces of equipment such as thermometer, thermohygrometer/ thermohygrograph, thermocouple, balance, mass, vernier caliper
- Review acceptability of results of calibration
- Safe handling, storage and use of reference standards



## **2. Specimen examination questions**

- 2.1. Define corrective and preventive actions and illustrate their difference with an example.
- 2.2. Given the following two sets of data conducted by two technicians on the same sample, evaluate for any statistical difference between the results.
- 2.3. Given the following complaint procedures, determine its compliance with the requirements of ISO/IEC 17025 and suggest any areas of improvement.



## APPENDIX 2

### **Training courses approved by the Certification Board**

Before 31 December 2013, the candidate attending the courses as listed below is deemed to have satisfied the competence requirements shown.

#### 1. Certified Testing Professional

Competence requirements	Course Name	Training Provider
ISO/IEC 17025	Laboratory Management for organizations implementing ISO/IEC 17025:2005	HKAS/HKTIC/IVE
Laboratory Safety	Laboratory safety	HKTIC/VTC/OSHC/ Labour Department

HKTIC – Hong Kong Association for Testing, Inspection and Certification Limited

HKAS – Hong Kong Accreditation Services

VTC – Vocational training Council

IVE – Hong Kong Institute of Vocation Education

OSHC - Occupational Safety and Health Council



Commencing from 1 January 2014, the candidate is required to obtain certificates of achievement (satisfactory results in end-of-course evaluation) in approved courses in meeting the competence criteria. Lists of training organizations and training courses are available on the Scheme website [www.hktic.org](http://www.hktic.org).

#### 1. Certified Testing Professional

Competence requirements	Course Name	Duration (hours)
Management skills	Comprehensive management	15
ISO/IEC 17025	Laboratory management	21
Safety	Laboratory safety	6
Statistical treatment of inter and intra laboratory comparison data	Statistical treatment of data	21
Implementation (internal audit)	Internal audit	15
Equipment calibration	Metrology and equipment calibration	6



## APPENDIX 3

### References

1. *ISO/IEC 17025:2005* "General requirements for the competence of testing and calibration laboratories"
2. *HKTIC PCSTP01* "Regulations for Professional Certification Scheme for Testing Personnel"
3. *HKTIC PCSTP07* "Guidelines for Counting Continuing Professional Development Unit (CPDU)"
4. *ISO 5725-3: 1994* Accuracy (trueness and precision) of measurement methods and results Part 3 – Intermediate measure of the precision of a standard measurement method
4. *ISO 13528: 2005* Statistical methods for use in proficiency testing by interlaboratory comparisons
5. *HOKLAS Supplementary Criteria No. 2* "All Test Categories – Equipment Calibration and Verification"
6. *GUIDEBOOKS FROM LABOUR DEPARTMENT OF HKSAR*
  - 6.1. A brief guide to first aid
  - 6.2. A brief guide to the Occupational Safety and Health Ordinance
  - 6.3. A brief guide to the Occupational Safety and Health Regulation
  - 6.4. Code of practice on safety management
  - 6.5. Guidelines for good occupational hygiene practice in a workplace
  - 6.6. Hazards during chemicals in use and safety guidelines
7. *Standards in relation to laboratory safety*
  - 7.1. *BS 7258* Laboratory fume cupboards
  - 7.2. *AS 2444* Portable fire extinguishers and fire blankets - Selection and location



CC10

CERTIFICATION HANDBOOK –QUALITY ASSURANCE

Issue 1.0, Issue date: 19 June 2013, Implementation date: 19 June 2013

主辦機構

Organised by



**Hong Kong Association for Testing  
Inspection and Certification**

**香港測驗認證協會**

"Any opinions, findings, conclusions or recommendations expressed in this material/event (or by members of the Project team) do not reflect the views of the Government of the Hong Kong Special Administrative Region, Trade and Industry Department or the Vetting Committee for the SME Development Fund."

“在此刊物上／活動內（或項目小組成員）表達的任何意見、研究成果、結論或建議，並不代表香港特別行政區政府、工業貿易署及中小企業發展支援基金評審委員會的觀點。”

「中小企業發展支援基金」撥款資助

Funded by SME Development Fund



工業貿易署

Trade and Industry Department