



香港公開大學

THE OPEN UNIVERSITY  
OF HONG KONG

科技學院 *School of Science and Technology*

# Continuing Training & Professional Development for Manpower of the Testing & Certification Industry

## 檢測和認證業的人力持續培訓及專業發展

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2017-11-16

# Statistics: Principal Statistics

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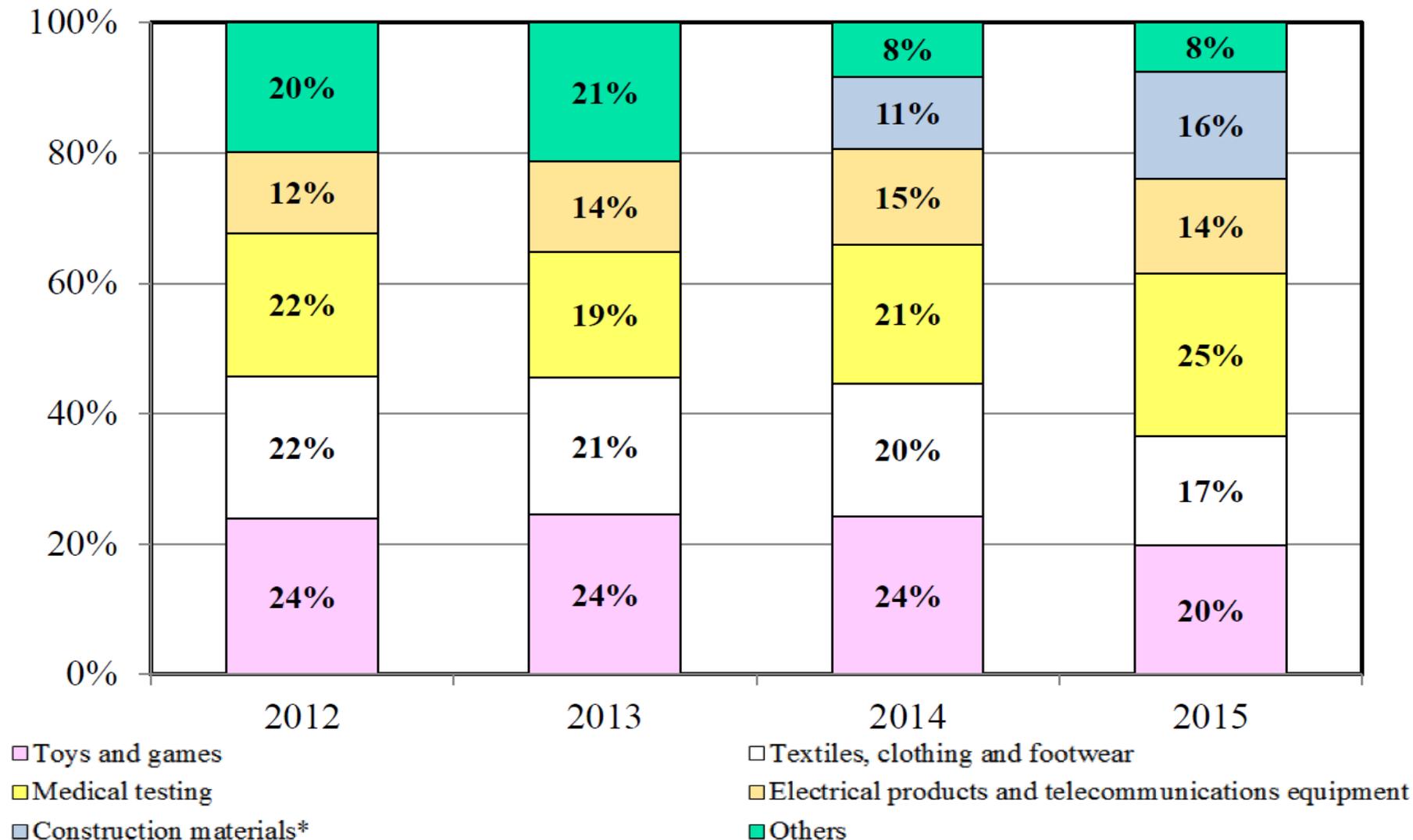
	No. of establishments	No. of persons engaged	Business receipts (HK\$ million)	Value added (HK\$ million)
<b>2012</b>	600 ( - )	12 780 (-2.5%)	10,876 (+0.9%) [+5.9%]	5,827 (+8.6%)
<b>2013</b>	610 (+1.7%)	13 090 (+2.4%)	11,828 (+8.8%) [+8.8%]	6,011 (+3.2%)
<b>2014</b>	610 (-)	13 520 (+3.3%)	13,021 (+10.1%) [+8.0%]	6,491 (+8.0%)
<b>2015</b>	640 (+4.9%)	13 580 (+0.4%)	13,959 (+7.2%) [+7.1%]	7,017 (+8.1%)

*Figures in brackets represent percentage changes over previous year.*

*Figures in square brackets represent percentage changes over previous year by excluding dividends.*

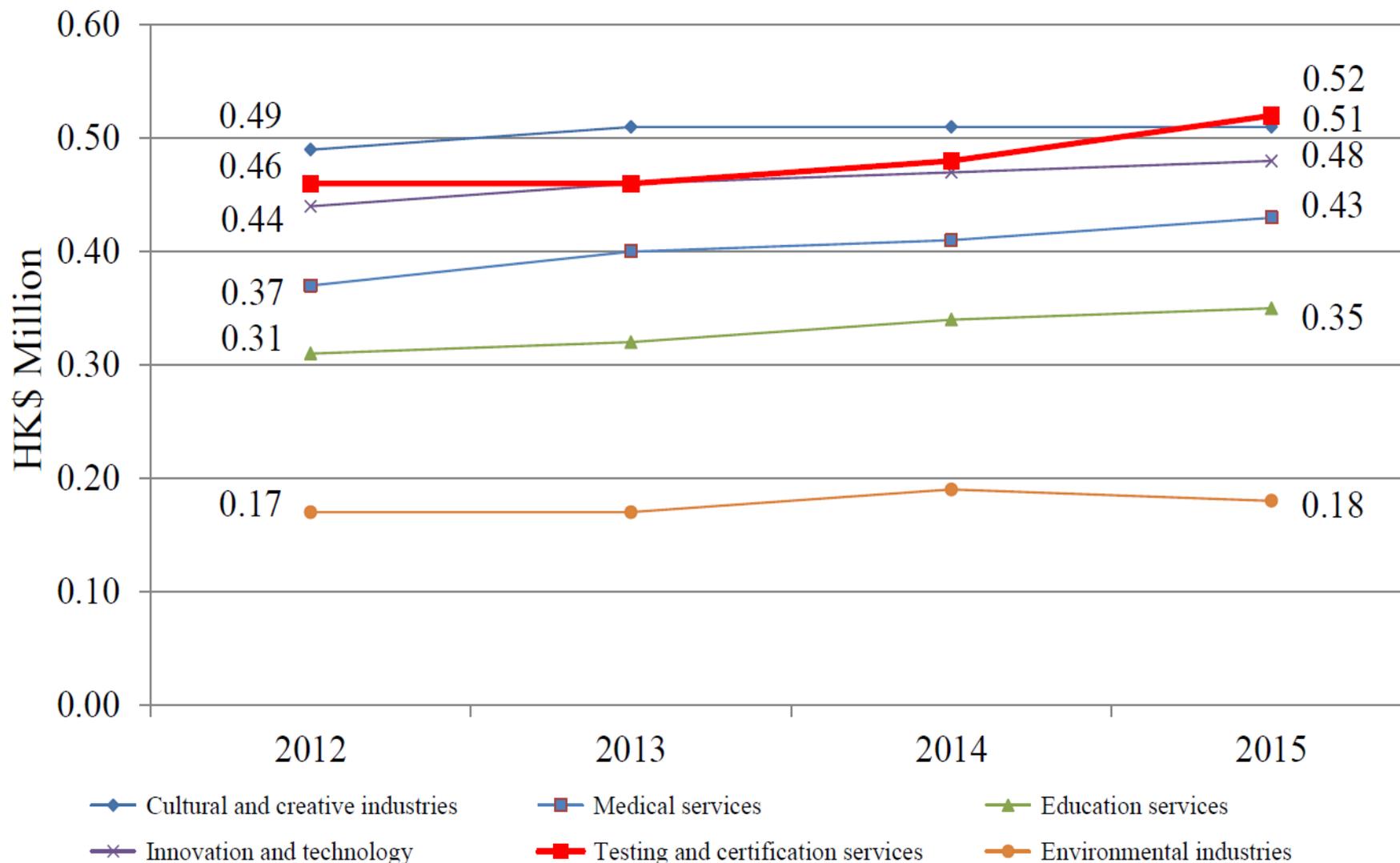
# Statistics: Distribution of Business Receipts

2



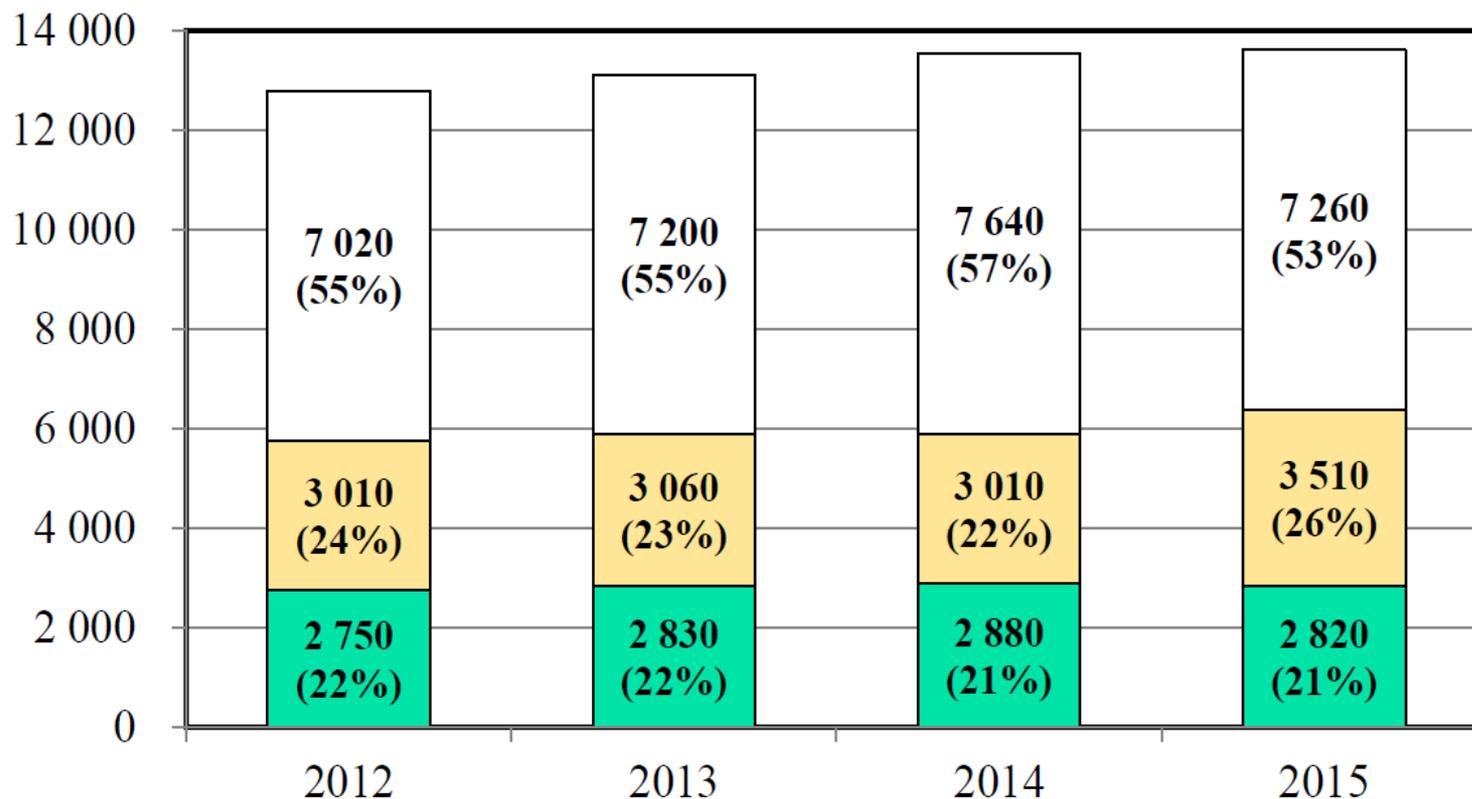
# Statistics: Value Added per Person Engaged

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# Statistics: No. of Persons Engaged

4

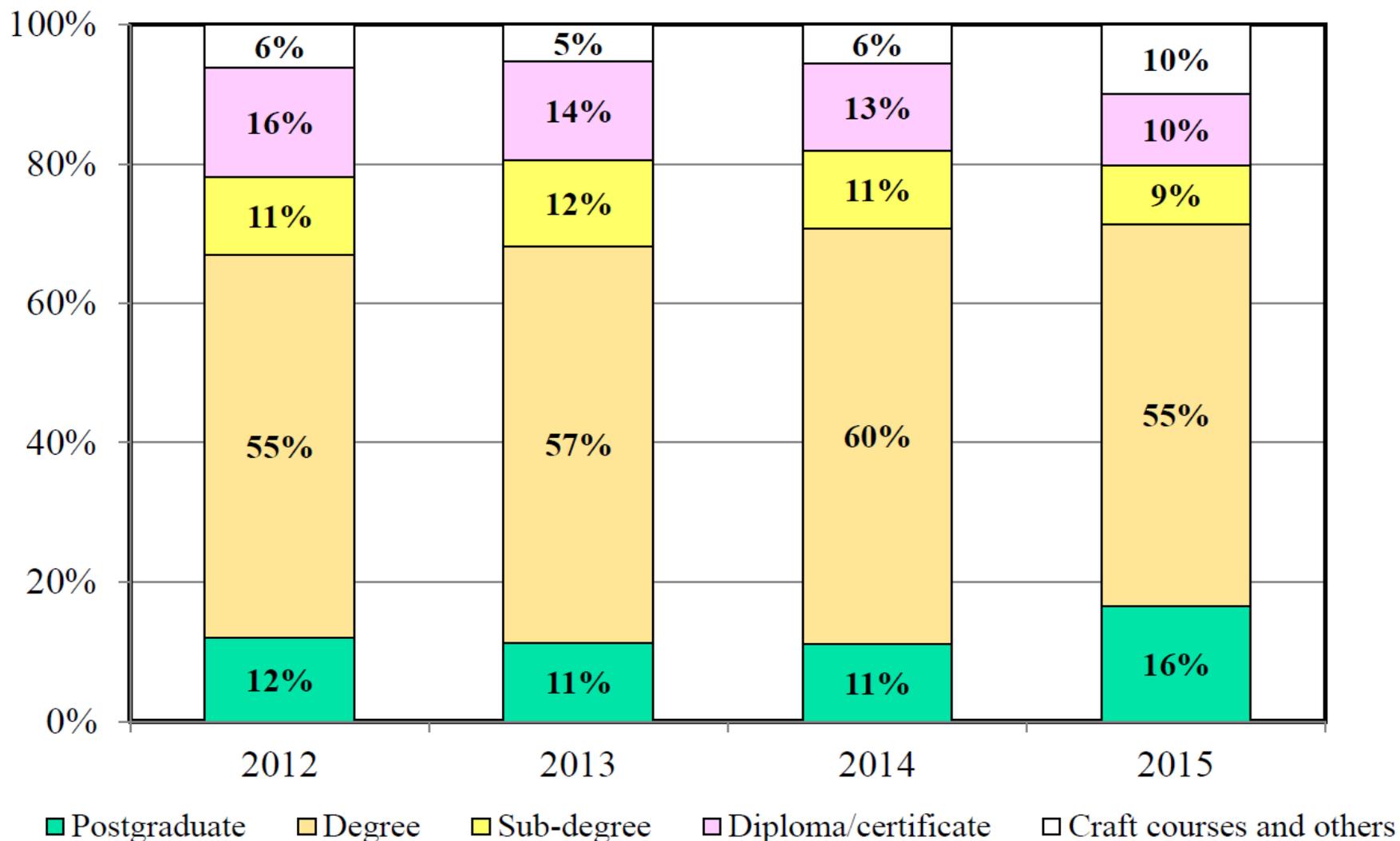


- Professional staff providing testing, inspection and certification services
- Associate professional staff providing testing, inspection and certification services
- Other staff\*

*\*Including managers and administrators; other professional and associate professional staff and sales workers.*

# Statistics: Proportion of Professional Staff

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# Continuing Training: Sub-degree level

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- Open University of Hong Kong
  - Associate of Science in Testing and Applied Sciences – Distance Learning
- Vocational Training Council (IVE)
  - Higher Diploma in Testing and Certification – Full-time
  - Higher Diploma in Analytical Science (Testing and Certification) – Full-time
  - Higher Diploma in Testing and Certification – Part-time day
- Hong Kong Baptist University (College of International Education)
  - Associate Degree in Testing and Certification – Full-time
- ...

# Continuing Training: Degree level

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- Open University of Hong Kong
  - BEng (Hons) in Testing and Certification – JUPAS (Full-time)
  - BSc (Hons) in Testing Science and Certification – JUPAS (Full-time)
  - BSc (Hons) in Testing Science (Food) – Top-up (Full-time)
  - BSc (Hons) in Testing Science (Environment Protection) – Top-up (Full-time)
  - BSc/ BSc (Hons) in Product Design, Testing and Certification – Distance Learning
- Vocational Training Council (THEi)
  - BSc (Hons) in Testing and Certification – Top-up (Full-time)
- Hong Kong Baptist University
  - BSc (Hons) in Analytical and Testing Sciences – JUPAS (Full-time)
- Hong Kong Polytechnic University
  - BSc (Hons) in Analytical Sciences for Testing and Certification – Top-up (Full-time)
- ...

# Continuing Training: Postgraduate level

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- Open University of Hong Kong
  - Postgraduate Certificate in Testing and Certification – Part-time
  - Postgraduate Diploma in Testing and Certification – Part-time
  - Master of Science in Testing and Certification – Part-time
- Hong Kong Baptist University
  - Master of Science in Analytical Chemistry
- Chinese University of Hong Kong
  - Master of Science in Accreditation Chemistry
- Hong Kong University of Science and Technology
  - Master of Science in Analytical Chemistry
- City University of Hong Kong
  - Master of Science in Chemistry
- Other local and overseas Universities
  - MPhil / PhD / DEng / EngD researches in relevant areas (e.g. product safety, quality & reliability engineering, ..., etc.)
- ...

# Continuing Training: Short Courses

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- Hong Kong Association for Testing, Inspection and Certification 香港測檢認證協會 (HKTIC) – 2~3 days each
  - Internal Auditing Based on ISO/ IEC 17025
  - Laboratory Quality Management Based on ISO/ IEC 17025
  - Laboratory Management Course Based On The New DIS 17025 : 2016 & HOKLAS Requirements
  - Guide to Express of Uncertainty in Measurement
  - Measurement Uncertainty for Analytical Laboratories
  - Calibration and Optimization - GC-MS and IC-MS
  - Advanced Analytical Techniques - Atomic Spectroscopy
- Vocational Training Council – 15 hours each
  - Quality System for Laboratory Management
  - Fundamentals of Equipment Calibration and Verification
  - Fundamentals of Measurement Uncertainty for Product Testing
- Other Organizations
  - Quality Management Systems (e.g. ISO 9001, ISO 14001, ...)

# Professional Development

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- Hong Kong Association for Testing, Inspection and Certification  
香港測檢認證協會 (HKTIC) (<http://www.hktic.org>)
  - Certified Testing Professional
  - Certified Testing Technician

Application	
Process	Certified Testing Technician    Certified Testing Professional
Application	On-line application on <a href="http://www.hktic.org">www.hktic.org</a> ; Submit by post filled application form, academic and relevant training certificates, and application fee
Initial review	Review of qualification, experience, supporting documents and necessary fee

# Professional Development

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Discipline	Sub-categories			
<b>Existing Disciplines</b>				
CHEMICAL	Elemental		Organic	
CONSTRUCTION MATERIAL	Building diagnostic	Construction material	Foundation	Welding nondestructive
ELECTRICAL PRODUCT	Safety	Electromagnetic Compatibility		Green
MICROBIOLOGICAL	Microbiological			
TEXTILE AND GARMENT	Color Fastness and Care Performance	Construction and Physical Performance	Fibre Analysis	Flammability Safety
TOYS AND HARDLINES	Toys and Children's Product		Hardlines	
<b><i>NEW disciplines (To be launched on 19 June 2013)</i></b>				
CALIBRATION	Calibration			
ENVIROMENTAL	Inorganic		Organic	
FOOD	Labelling		Contaminant	
QUALITY ASSURANCE	Quality Assurance			

# Professional Development

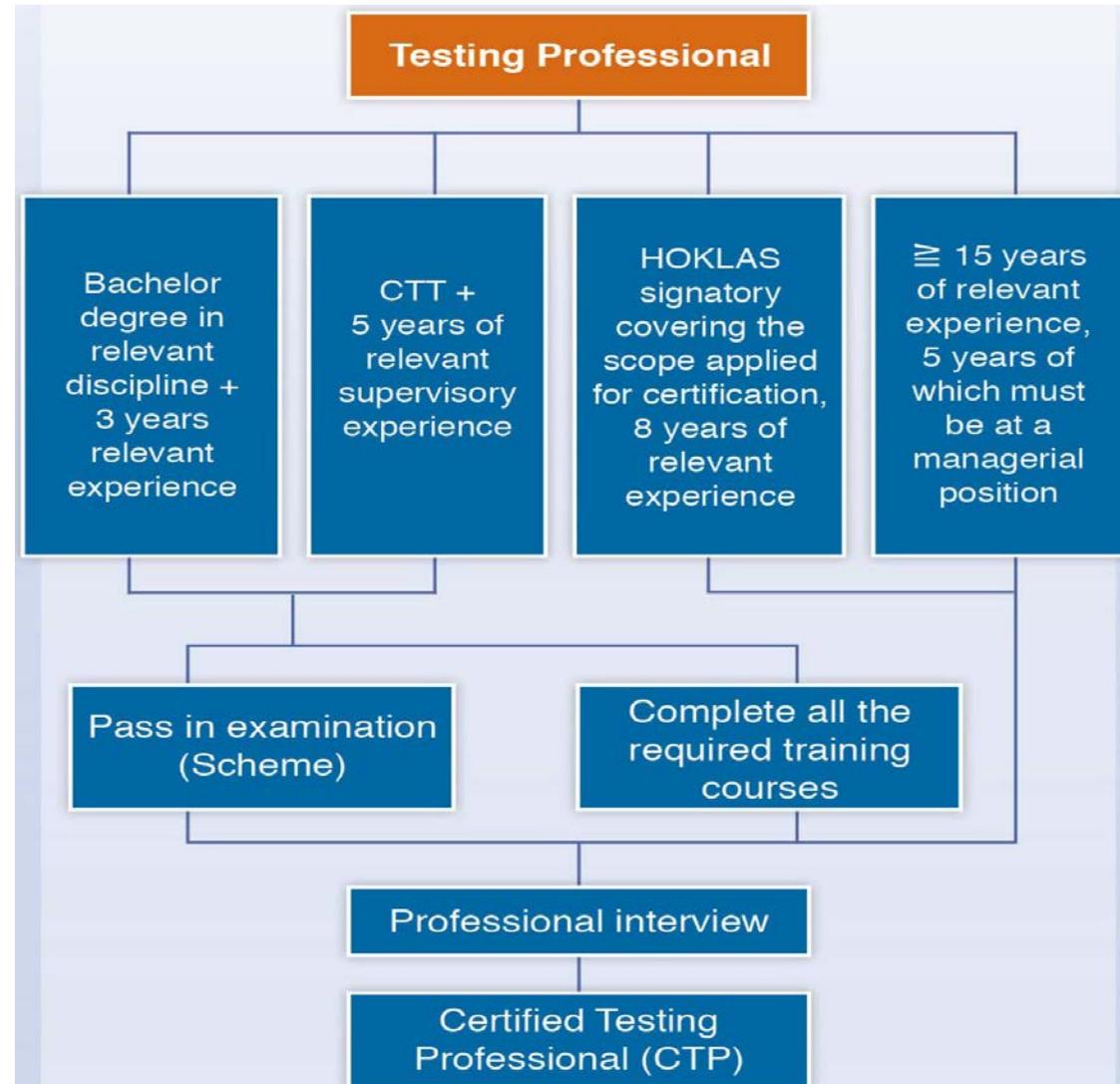
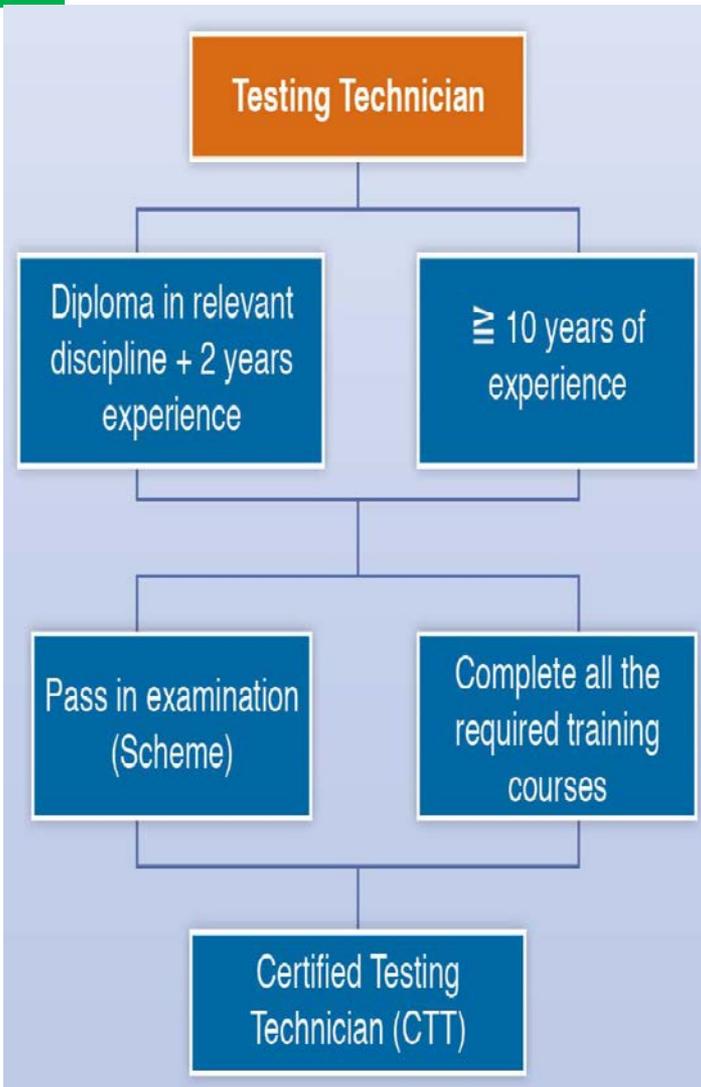
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Certification Process		
Process	Certified Testing Technician	Certified Testing Professional
Decision of certification	Review of applicant's compliance with the certification criteria and decide on the acceptability by the Certification Board	
Register of certification	Register of certified testing personnel will be uploaded on Scheme website Certificate of certification will be issued to the successful candidate for record	
Re-certification (3 years)	Submission of Log Form on attainment of continuous professional development in terms of the accumulation of continuing professional development units (CPDUs) Guidelines for awarding CPDU are given in the document PCSTP07 Log form for CPDU and PCSTP07 are available on website <a href="http://www.hktic.org">www.hktic.org</a>	
	30 PDUs per 3 year cycle	60 PDUs per 3 year cycle

Source: [http://www.hktic.org/File/Scheme\\_leaflet.pdf](http://www.hktic.org/File/Scheme_leaflet.pdf)

# Professional Development

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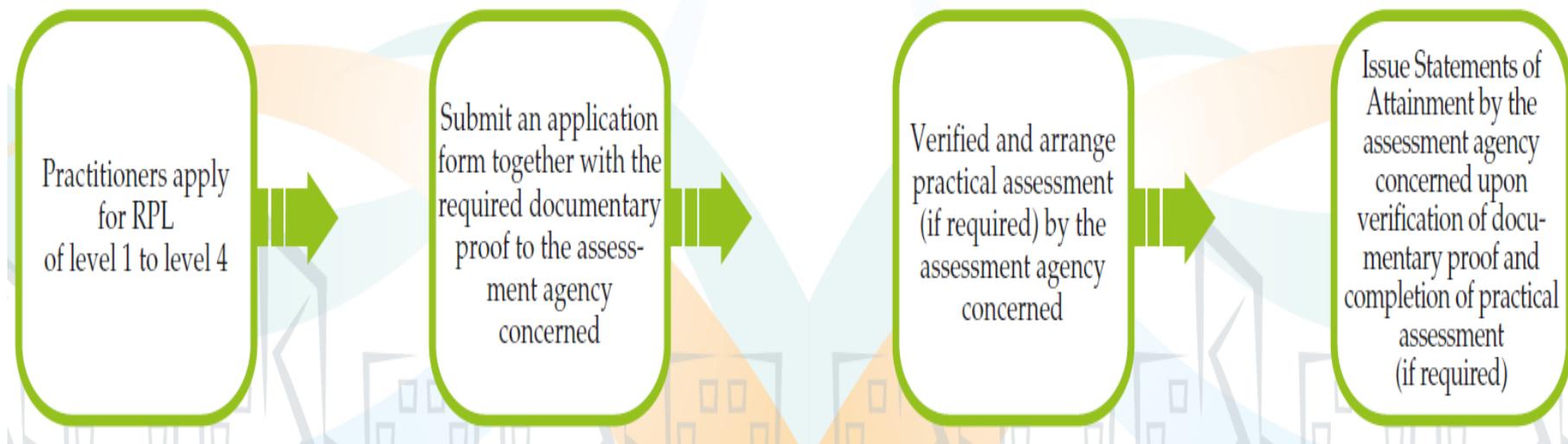


# Professional Development

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- Recognition of Prior Learning (RPL) Assessment Agency for TIC Industry 檢測及認證業「過往資歷認可」評估中心 ([rpl.ouhk.edu.hk](http://rpl.ouhk.edu.hk))
  - ▣ Qualifications Framework (QF) recognized qualifications

## Application for Recognition of Prior Learning



# Professional Development

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- Work experience and related job experience required
  - ▣ QF Level 4 Clusters
    - 6 years' relevant experience in TIC Industry (including 3 years in related field)
  - ▣ QF Level 3 Clusters
    - 5 years' relevant experience in TIC Industry (including 2 years in related field)
  - ▣ QF Level 2 Clusters
    - 3 years' relevant experience in TIC Industry (including 1 year in related field)

Level to be Recognized	Years of Service within Relevant Industry	Relevant Work Experience Required	Documentary Proof	Assessment Test
Level 4	6 years	Depending on the specific requirements of respective industries (No more than the years of service required)	Proof of years of relevant work experience is required	Assessment test is required
Level 3	5 years			During the transitional period <sup>1</sup> , applicants may opt for documentary proof, without the need for taking any assessment test <sup>2</sup> .
Level 2	3 years			
Level 1	1 year			

# Professional Development

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- A total of 51 Clusters (QF Level 2 to Level 4)
  - Measurement Uncertainty (3 clusters)
  - Laboratory / On-site Testing – Testing Operations: Sampling and Sample Handling (2 clusters)
  - Laboratory / On-site Testing – Testing Operations: Preparation Work (2 clusters)
  - Laboratory / On-site Testing – Testing Operations: Chemical Testing (6 clusters)
  - Laboratory / On-site Testing – Testing Operations: Biological / Microbiological Testing (2 clusters)
  - Laboratory / On-site Testing – Testing Operations: Environmental Testing (2 clusters)
  - Laboratory / On-site Testing – Testing Operations: Construction Materials Testing (7 clusters)
  - Laboratory / On-site Testing – Testing Operations: Physical and Mechanical Testing (Toys and Hardlines) (3 clusters)
  - Laboratory / On-site Testing – Testing Operations: Textiles and Garment Products Testing (9 clusters)
  - Laboratory / On-site Testing – Testing Operations: Electrical and Electronic Products Testing (7 clusters)
  - Laboratory / On-site Testing – Testing Quality Management (4 clusters)
  - Inspection – Inspection Operation (3 clusters)
  - Operations Management – Occupation Safety and Health (1 cluster)



## 25. Physical and Mechanical Testing (Toys and Hardlines – Flammability Tests) (Level 4)

Major Competency Standards	Carry out flammability tests on toys and hardlines products and record accurate test data and observations to judge the compliance of the products in testing laboratories.	
Years of Work Experience and Related Job Experience	<del>SIX</del> years' relevant experience in TIC industry (including <del>THREE</del> years' of experience in related field)	
<u>Units of Competency</u>	105873L3	Record and present data
	105872L4	Process data
	105871L4	Apply statistical calculations to measurement data
	105851L4	Perform flammability tests (toys and hardlines)

# Professional Development

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Title	Perform flammability tests (toys and hardlines)
Code	105851L4
Range	This unit of competency (UoC) covers the abilities to carry out flammability tests on toys and hardlines independently by applying the knowledge of flammability behaviour of materials used in the products, and record accurate test data and observations to judge the compliance of the products in testing laboratories.
Level	4
Credit	4 (for reference only)
Competency	<p>Performance Requirements</p> <ol style="list-style-type: none"><li>1. Possess knowledge of flammability behaviour of materials used in toys and hardlines<ul style="list-style-type: none"><li>• Define the flammability category and describe the flammability behaviour of different materials used in selected toy or hardline products, e.g.:<ul style="list-style-type: none"><li>• toys and children products,</li><li>• hardline goods.</li></ul></li><li>• Define physical properties related to flammability test, e.g. flash point, boiling point, viscosity.</li><li>• Employ the principles and methods of flammability tests, e.g. vertical test, horizontal test, ignitability test.</li></ul></li></ol>

Source: <http://rpl.ouhk.edu.hk>

# Professional Development

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- Specify regulatory requirements of flammability tests for selected products, e.g.:
    - toys: 16 CFR 1500 & 1610, Canada Toys Regulations,
    - tents: US CPAI 84, Canada SOR/90-245,
    - sleeping bags: US CPAI 75.
  - Describe the sampling procedures for particular flammability tests.
  - Specify the requirements of sample preparation before tests, e.g. washing.
  - Explain the principles and operation of equipment used for flammability tests.
  - Apply the concepts of uncertainty and equipment calibration to the flammability tests.
2. Perform flammability tests
- Select appropriate test methods/standards, test conditions and test site for flammability tests.
  - Apply appropriate testing equipment, test assembly and ignition source for the flammability tests.
  - Prepare appropriate toy or hardline test sample for particular flammability test.
  - Carry out the flammability test on the test sample independently in appropriate testing environment/chamber according to the test methods/standards.
  - Carry out required validation checks to confirm the system and equipment requirements are met.
  - Record accurate test data and observations on the surrounding environment and/or materials and judge test results to confirm the compliance of the test sample.

# Professional Development

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	<p>3. Exhibit professionalism</p> <ul style="list-style-type: none"><li>• Ensure all tests are carried out in compliance with good laboratory practices under relevant categories of standards.</li><li>• Ensure testing activities comply with corporate environmental policies by taking appropriate measures to minimise the pollution to the environment.</li><li>• Ensure integrity and confidentiality of laboratory data and information by observing the code of conduct as required by the standards and the organisation.</li></ul>
Assessment Criteria	<p>The integrated outcome requirements of this UoC are the abilities to:</p> <ul style="list-style-type: none"><li>• carry out the flammability test on selected toy or hardline product independently by applying appropriate testing equipment and test conditions according to the requirements of test methods/standards,</li><li>• record accurate and reliable test data and observations by data validation and verifying equipment calibration status,</li><li>• judge test results to confirm the compliance of flammability behaviour of the product against the relevant specifications of test methods/standards.</li></ul>
Remark	

# Professional Development

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## □ RPL Support Scheme

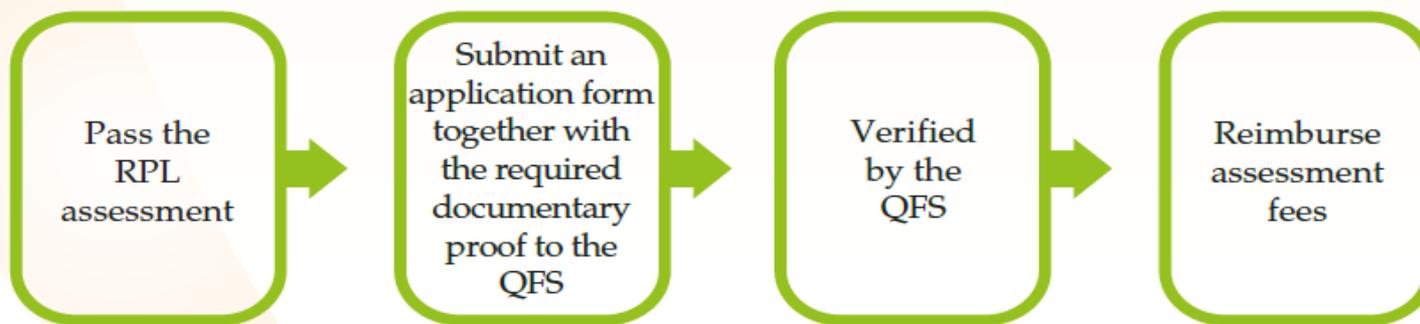
### □ Eligibility

- Practitioners successfully passed the RPL assessments

### □ Level of subsidy

- 100% of RPL Assessment Fees. To be reimbursed in two stages:
- Successfully passed RPL assessments: 75% of RPL Assessment Fees
- Completed a QF-recognized training course: The remaining 25% of RPL Assessment Fees

## Application for Reimbursement of RPL Assessment Fees



# Professional Development

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- The Hong Kong Institution of Certified Auditors (HKICA)  
香港專業審核師學會 ([www.hkica.org](http://www.hkica.org))
  - ▣ Lead Auditor, Auditor, Assistant Auditor, Internal Auditor, ...
- Hong Kong Society for Quality 香港品質學會 (HKSQ)  
([www.hksq.org](http://www.hksq.org))
  - ▣ Certified Laboratory Quality Specialist
  - ▣ Certified Quality Manager / Engineer
  - ▣ Certified Six Sigma Green / Black Belt
- The Hong Kong Institution of Engineers 香港工程師學會  
(HKIE) ([www.hkie.org.hk](http://www.hkie.org.hk))
  - ▣ Fellow, Member, Associate Member, Graduate Member, ...
- Other local or overseas professional organizations
  - ▣ Fellow, Senior Member, Member, Associate Member, ...

Tested In Hong Kong  
Certified In Hong Kong

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