

2012 MANPOWER SURVEY REPORT

ELECTRONICS INDUSTRY

電子業

2012 年人力調查報告

ELECTRONICS AND TELECOMMUNICATIONS TRAINING BOARD

VOCATIONAL TRAINING COUNCIL

職業訓練局

電子業及電訊業訓練委員會

- This is a blank page -
- 空白頁 -

CONTENTS

	<u>Title</u>	<u>Paragraph</u>	<u>Page</u>
	Executive Summary of the Report	1 - 12	1 - 4
	<u>Section</u>		
I	Introduction	1.1 - 1.13	5 - 8
II	Summary of Survey Findings	2.1 - 2.11	9 - 15
III	Conclusions	3.1 - 3.24	16 - 25
IV	Recommendations	4.1 - 4.21	26 - 33

目錄

	<u>標題</u>	<u>段數</u>	<u>頁數</u>
報告摘要		1 - 12	35 - 38
<u>章數</u>			
I	緒論	1.1 - 1.13	39 - 42
II	調查結果摘要	2.1 - 2.11	43 - 49
III	結論	3.1 - 3.24	50 - 58
IV	建議	4.1 - 4.21	59 - 65

LIST OF APPENDICES AND ANNEXES

<u>Appendix</u>	<u>Title</u>	<u>Page</u>
1	Manpower Statistics of the Electronics Industry Sector 1 - Manufacturing	69
2	Manpower Statistics of the Electronics Industry Sector 2 – Trading and Services	70
3	Manpower Statistics of the Electronics Industry Sector 3 – Telecommunications Services	71
4	Manpower Statistics of the Electronics Industry Sector 4 - Wholesale	72
5	Manpower Statistics of the Electronics Industry Sector 5 – Design Houses, Relevant Departments in Universities and Government	73
6	Manpower Statistics of the Electronics Industry Sector 6 – 5 Large Retail Shops for Electronics Products	74
7	Manpower Statistics of the Whole Electronics Industry	75
8	Distribution of Employees by Monthly Income Range	76
9	Skill an employee needed to enhance	77
10	Recommended Number of Trainees to be Taken on Annually for the Next Few Years	78
 <u>Annex</u>		
A	Membership of the Electronics and Telecommunications Training Board	79 - 81
B	Terms of Reference	83
C	Letter to Selected Establishments	85 - 86
D	Survey Questionnaire	89 - 92
E	Explanatory Note on the Questionnaire	93 - 96
F	Job Descriptions of Principal Jobs	97 - 106

附錄及附件一覽表

<u>附錄</u>	<u>標題</u>	<u>頁數</u>
1	電子業人力統計數字 門類一：製造	69
2	電子業人力統計數字 門類二：貿易及服務	70
3	電子業人力統計數字 門類三：電訊服務	71
4	電子業人力統計數字 門類四：批發	72
5	電子業人力統計數字 門類五：設計公司、相關院校學系及政府部門	73
6	電子業人力統計數字 門類六：電子產品零售公司 (5 間大型公司)	74
7	電子業人力統計數字 (各門類)	75
8	僱員分布情況 (根據每月總收入幅度劃分)	76
9	僱員需要加強培訓的技能	77
10	建議未來幾年每年應取錄的受訓者人數	78
<u>附件</u>		
甲	電子業及電訊業訓練委員會委員名單	79 - 81
乙	職權範圍	84
丙	致僱主函	87 - 88
丁	調查表	89 - 92
戊	調查表附註	93 - 96
己	主要職務工作說明	97 - 106

Executive Summary of the 2012 Manpower Survey Report of the Electronics Industry

Introduction

The survey was conducted in April 2012 by the Electronics and Telecommunications Training Board of the Vocational Training Council (VTC) to collect up-to-date manpower information by principal job in the electronics industry.

2. The fieldwork of the manpower survey covered 697 establishments which were selected by means of a stratified random sampling method from a total of some 7 364 establishments. The survey data collected from the selected establishments were scaled up statistically to reflect the overall manpower situation of the industry.

Survey Findings

3. The survey revealed that in April 2012, a total of 135 972 persons were employed in the Hong Kong electronics industry. Of the 135 972 employees, 58 631 were employed in principal jobs of electronics engineering and related disciplines in the electronics industry. The distribution of employees by job level and by sector of the electronics industry is as follows:

Table A : Distribution of Employees by Job Level and by Sector

Sector	Job Level				Total
	Technologist	Technician	Craftsman	Operative	
1. Manufacturing	956	2 432	551	2 113	6 052 10.3%
2. Trading and Services	7 621	21 824	3 814	1 454	34 713 59.2%
3. Telecommunications Services	2 200	4 337	609	133	7 279 12.4%
4. Wholesale	293	3 202	274	108	3 877 6.6%
5. Design Houses and Relevant Departments in Universities and Government	904	2 333	962	95	4 294 7.3%
6. Retail Shops for Electronics Products (5 large shops)	8	2 408	-	-	2 416 4.2%
Total (Percentage of Total Manpower)	11 982 20.4%	36 536 62.3%	6 210 10.6%	3 903 6.7%	58 631 100%

4. At the time of the survey, employers reported a total of 799 trainees and 1 431 vacancies in electronics engineering and related disciplines, representing 1.4% and 2.4% respectively of the workforce. Besides, employers also forecasted that the industry would require 60 338 workers by April 2013, an increase of 1.5% (1 707) of the workforce in April 2012.

Manpower Changes

5. The total manpower in principal jobs of electronics and related disciplines of the industry shows an increase from 52 115 workers in 2010 to 58 631 in 2012. However, there were three new HSICs included in Sector 2 – Trading & Services for the first time. Also, in Sector 6 –Retail Shops for Electronics Products, only the manpower of 5 Retail Shops for Electronics Products was surveyed for the third time which was not a full survey on the sector. Thus, for a better and direct manpower comparison, the Sectors 2 and 6, occupying 63.3% of the total manpower, are not included. The total manpower (21 502) of the rest of the four Sectors (1, 3, 4 and 5) took up the remaining 36.7% of the total manpower, resulting an annual decrease of 0.7% or 300 workers, over the past two years. It recorded an annual decrease of 7.1% in Sector 1 – Manufacturing, a mild decrease of 3.0% and 1.8% in Sector 3 – Telecommunication Services and Sector 5 – Design Houses and Government Departments respectively. As a whole, a very mild annual decrease of 0.7% in the overall manpower of the four Sectors.

6 The followings attributed to the manpower changes by sector:

- (i) The annual manpower decrease in Sector 1 was mainly due to some large companies closed their manufacturing services, i.e. a total of 22 companies with employment size of 50 and over comparing with 32 in 2010;
- (ii) Although it is only for reference, a substantial annual manpower increase of 12.3% was obtained in Sector 2 due to the inclusion of three new HSICs. It seemed that there was a growth in engineering services in the past two years. The sharp annual decrease of manpower of 11.5% recorded in Sector 6 was the result of the number of companies surveyed from nine in 2010 reduced to five in 2012 due to a poor response of the companies in the Sector;
- (iii) In view of continuous demand of new telecommunication services in the past two years, the manpower of Sector 3 should record an annual increase but an annual decrease of 3.0% was recorded. It was because some telecommunication companies registered their business under Sectors 2 and 4 rather than Sector 3. In the past two years, the steady manpower engaged in the engineering departments of the universities and Government departments constituted the major manpower demand in Sector 5. However, less number of design houses included in the survey caused the very mild manpower decrease in Sector 5. In general, the manpower required by design houses was stable; and

- (iv) The sharp annual increase of 22.1% of manpower in Sector 4 mainly reflected that the sector was benefitted from the continuous increase in tourists visiting Hong Kong. Compared with 2010, 21 more companies were added to the sector and among them six were large companies with employment size of 50 or over. More and more wholesale companies employed more staff to promote their goods and services to customers in different branches of the retail shops selling electronics products.

Future Manpower Demand

7 Based on the manpower trend, business outlook of the electronics industry and employers' forecast of future manpower requirements, the Training Board believes that in the years ahead, there will be an on-going demand for well-trained technologists and technicians to maintain the development of the electronics industry. However, the demand for operatives (manufacturing) and craftsmen will be limited.

8 In view of the latest development of the industry, the Training Board has also estimated the loss of manpower at different job levels due to workers leaving the electronics industry through retirement, migration to other industries and other causes. The Training Board has decided that the normal annual wastage rate of 3% be used for the loss of manpower at the technologist, technician and craftsman levels.

9 The Training Board has estimated, by using the Adaptive Filtering Method for the manpower projection for the technologist and technician levels. As there was a sharp decrease of craftsman, the Training Board has considered that the manpower demand of craftsman will be just for training of wastage. The additional manpower required by the electronics industry for 2013 – 2015 is summarized in Table B below.

Table B: Annual Manpower Demand in the Electronics Industry from 2013 to 2015

Job Level	Annual Average Additional Demand for Employees	
	Total	±10% Range
Technologist	436	392 - 480
Technician	2 204	1 984 - 2 425
Craftsman	188	169 - 207

Recommendation

10 The Hong Kong electronics industry remains as the largest local merchandise export maker, contributing 58% of Hong Kong's total export in 2012. Hong Kong's

economy is forecasted to continue to grow by 1.5% to 3.5% in 2013. However, the continuous sharp increase of the appreciation of Renminbi, rise in wage, taxes and duties, and price increase in energy and materials cause a great challenge to the industry. The shortage of workers in the Pearl River Delta is another threat. As a result, many manufacturing companies plan to relocate their production lines to a lower-cost country. On the other hand, the United States (US) Federal Reserve continues to keep short-term interest rates at rock-bottom levels aiming to drag down unemployment. The Federal Reserve also keeps buying US\$85 billion a month in bonds hoping to a better economy. In Europe, the on-going Euro debt crises will further damage the European economy. Also in March 2011, the Mainland revealed its 12th Five-Year Plan which will boost its domestic consumer demand and lift up the level of urbanization. The Plan will also provide considerable opportunities for Hong Kong firms. The Supplement IX to CEPA signed on 29 June 2012 provided for a total of 43 services liberation and trade and investment facilitation measures. The measures, taken effective from 1 January 2013, will further strengthen Hong Kong and the Mainland in areas of finance, trade as well as investment facilitation and also enhance the mutual recognition of professional qualifications of the two parties. In view of the above, the Training Board has a cautious optimistic view that the electronics industry will continue to grow. Thus, the Training Board recommends the following measures for employers to consider coping with present situation and challenges ahead:

- (i) To re-engineer, streamline and diversify business to make company more effective and efficient than before;
- (ii) To develop more value-added, cost effective and green products / services to increase competitive ability;
- (iii) To further strengthen the overall skill level and competency of the staff, especially the technical workforce, through appropriate training in order to become a much stronger and competitive organisation;
- (iv) To carry on to explore new business in the most cost effective way so as to strengthen market share; and
- (v) To continue to maintain and to deepen strong partnership with important customers and to establish new partnership with potential customers.

11 Regarding the strength of skill and competency of staff, the Training Board suggests that on top of the individual company's training needs, the "Skills an Employee Need to Enhance" at Appendix 9 will be a good reference on various aspects of training for employers. In this particular situation, employers are recommended to step up their training efforts in order to ensure supply of well-equipped manpower to meet the challenges and business opportunities ahead. The Training Board also recommends Vocational Training Council and other training organizations to keep a close view on the above training needs of the electronics industry and to provide such needs in time.

12 The Training Board will conduct another manpower survey of the electronics industry in 2014 to review and update the manpower requirements of the industry.

SECTION I

INTRODUCTION

The Training Board

1.1 The Electronics and Telecommunications Training Board of the Vocational Training Council (VTC) is a statutory body appointed by the Government of the Hong Kong Special Administration Region (HKSAR) to be responsible for matters pertaining to manpower training in the electronics industry. The Training Board comprises members nominated by major trade associations, professional bodies, worker unions, training and educational institutions, as well as representatives from government departments. The membership and terms of reference of the Training Board are given in Annexes A and B respectively.

1.2 The Training Board is required by its terms of reference to determine the manpower needs of the electronics industry and to recommend to the VTC the development of vocational education and training facilities to meet such needs.

The Manpower Survey

1.3 The Training Board conducted a survey in April 2012 to collect up-to-date information on the manpower situation of the electronics industry. The survey was conducted with the assistance of the Census and Statistics Department of the HKSAR Government. Follow-up of the fieldwork finished in November and data processing was completed in January 2013.

1.4 The following manpower statistics and information were collected from the survey:

- (i) number of employees in various principal jobs at the time of the survey;
- (ii) number of existing vacancies;
- (iii) number of trainees;
- (iv) employers' forecast of the total number of employees by April 2013;
- (v) average monthly income of employees; and
- (vi) employers' views on the preferred education, training mode and training period of employees.

1.5 Employers were also requested to provide other information such as the number

of technologists, technicians and craftsmen who had been promoted in the past 12 months, and also those who had been deployed to work for more than 6 months outside Hong Kong during the 12 months prior to the survey, as well as the skills employees needed to enhance.

Scope of Survey

1.6 The survey covered firms, relevant departments in the government and educational institutions in the following six sectors of the industry:

Sector 1: Manufacturing

Manufacturers of :

- (a) Computers and peripheral equipment (HSICs 262000, 281700, 952100);
- (b) Audio and video equipment (HSICs 264000, 953100);
- (c) Communications equipment and cables (HSICs 263000, 273100, 952200);
- (d) Magnetic and optical media, and reproduction of recorded media (HSICs 182000, 268000);
- (e) Electronic parts and components for computer and telecommunication equipment (HSIC 261100);
- (f) Electronic parts and components not elsewhere classified (HSIC 261900);
- (g) Electronic games and toys (HSIC 324500); and
- (h) Electronic industrial apparatus, and measuring testing, navigating and control equipment (HSICs 265100, 331300).

Sector 2: Trading and Services

Establishments of :

- (a) Anti-burglar system, intercommunication system, and telecommunications equipment, installation and maintenance (HSICs 432104, 432105, **432106**[^]);
- (b) Imports and exports of:
 - (i) Scientific and professional instruments and apparatus (HSICs 451631, 452631)*;
 - (ii) Telecommunications equipment and parts (HSICs 451611, 452611)*;
 - (iii) Electrical goods (HSICs 451452, 452452)*;
 - (iv) Computers and computer peripherals and computer software (HSICs 451601, 451602, 452601, 452602)*;
 - (v) Office appliances and equipment (HSICs 451634, 452634)*;

- (vi) Electronic parts (HSICs **451613, 452613**)[^]*
- (c) Data processing, hosting and related activities (HSICs 620101, 620199, 620200, 620900, 631100)*; and
- (d) Other electronics engineering services not included in (a) to (c).
(Appendix A)

Sector 3: Telecommunication Services

Establishments of :

- (a) Telecommunications network operation services (HSIC 611000);
- (b) Other miscellaneous telecommunications activities nowhere else classified (HSIC 619900);
- (c) Internet access services (HSIC 619100); and
- (d) Radio broadcasting, motion picture, video and television programming, and broadcasting activities (HSICs 591100, 601000, 602000).

Sector 4: Wholesale

Establishments of wholesale of :

- (a) Telecommunications equipment and parts (HSIC 460611);
- (b) Electrical goods (excluding machinery, office and telecommunications equipment and appliances) (HSIC 460452);
- (c) Computers and computer peripheral equipment (HSICs 460601, 460602); and
- (d) Office machines, appliances and equipment (excluding computer, furniture and fixtures) (HSIC 460634).

Sector 5: Design houses and Relevant Departments in Universities and the Government

- (a) Electronics design houses;
- (b) Relevant educational institutions; and
- (b) Relevant government departments.

Sector 6: Retail Shops for Electronics Products (5 large shops)

- Notes:
- (1) *HSIC denotes Hong Kong Standard Industrial Classification*
 - (2) ** Excluding those establishments with an employment size below 10 as they are unlikely to have a significant number of technical staff.*
 - (3) *[^]HSICs 432106, 451613 and 452613 are newly added.*

1.7 Prior to the survey, the Census and Statistics Department recorded some 7 364 establishments in the above six sectors of the electronics industry in Hong Kong. In view of the limited resources available, a stratified random sampling method was adopted and a total of 697 samples were selected to be surveyed. The data collected were then processed and scaled up statistically to give an overall picture of the manpower situation of the industry.

Method of the Survey

1.8 Two weeks before the survey, relevant survey documents including questionnaire (Annex D), explanatory notes (Annex E) and list of principal jobs (Annex F) were mailed to the 697 establishments. Prior publicity was also given through the local press and relevant trade and industrial organizations to solicit employers' co-operation in the survey.

1.9 During the survey period, interviewing officers of the Census and Statistics Department visited all 697 establishments to collect the completed questionnaires and, where required, to assist employers in completing them. All returned questionnaires were scrutinized and where necessary, cross checked with the respondents.

Response to the Survey

1.10 Of the 697 establishments, 433 completed the questionnaires and 38 refused to supply information. The remaining 226 establishments had either moved, closed and could not be traced, or no longer engaged in the trade. The effective response rate was 91.9%.

1.11 During the survey, some of the establishments just provided the rough manpower information and did not give details of their employees' monthly income, number of trainees or number of vacancies at the date of survey. The reasons were that they were too busy and not willing to provide confidential information of their organizations.

The Report

1.12 After follow-up of the fieldwork and data processing, the Training Board compiled in February 2013 a statistical report which presented the main manpower data collected from the survey. The statistical report was subsequently mounted onto the VTC website for public information.

1.13 This report presents all the findings of the survey together with the Training Board's forecast of the training needs of the industry and recommendations on measures to meet these needs. In the report, the terms "employees", "workers" and "manpower" refer to the total number of persons employed in the principal jobs at the time of the survey but excluding trainees and apprentices. The term "trainees" means all persons receiving any form of training including those registered apprentices under a contract of apprenticeship.

SECTION II

SUMMARY OF SURVEY FINDINGS

Number of Persons Employed

2.1 The survey revealed that in April 2012, a total of 135 972 persons were employed in the electronics industry in Hong Kong. Of them, 58 631 were engaged in the principal jobs of electronics engineering and related disciplines. The following paragraphs present only the manpower statistics of those employees employed in the principal jobs.

Distribution of Employees by Job Level and by Sector

2.2 The distribution of employees by job level and by sector of the electronics industry is shown in Table 2.1, Figure 2.1 and Figure 2.2.

Table 2.1 : Distribution of Employees by Job Level and by Sector

Sector	Job Level				Total (% of Total MP)
	Technologist	Technician	Craftsman	Operative	
1. Manufacturing	956	2 432	551	2 113	6 052 (10.3%)
2. Trading and Services	7 621	21 824	3 814	1 454	34 713 (59.2%)
3. Telecommunications Services	2 200	4 337	609	133	7 279 (12.4%)
4. Wholesale	293	3 202	274	108	3 877 (6.6%)
5. Design Houses and Relevant Departments in Universities and Government	904	2 333	962	95	4 294 (7.3%)
6. Retail Shops for Electronics Products (5 large shops)	8	2 408	-	-	2 416 (4.2%)
Total (Percentage (%) of Total Manpower (MP))	11 982 20.4%	36 536 62.3%	6 210 10.6%	3 903 6.7%	58 631 100%

Figure 2.1 : Distribution of Employees by Job Level

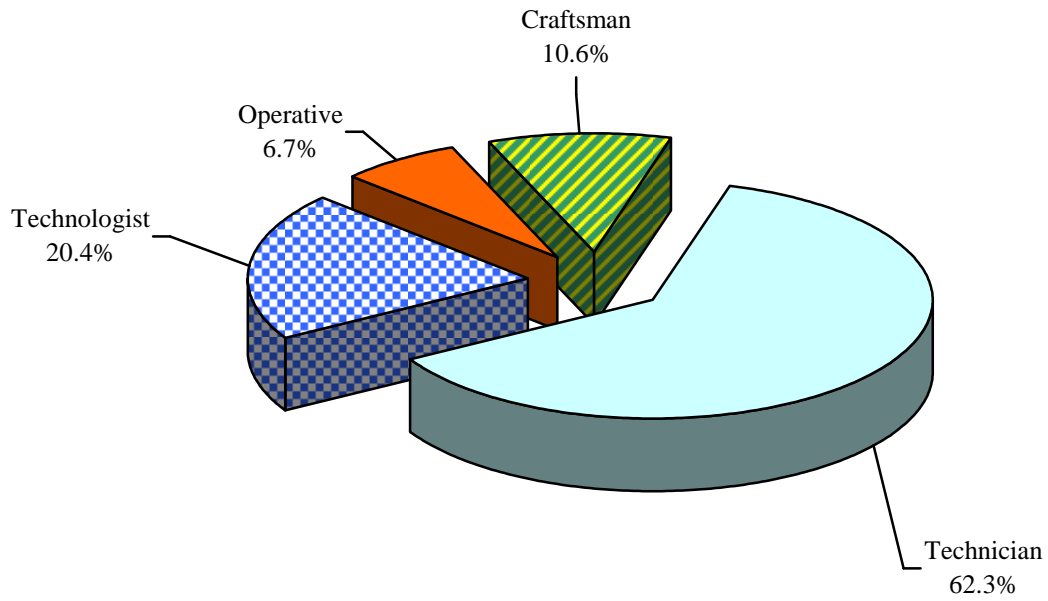
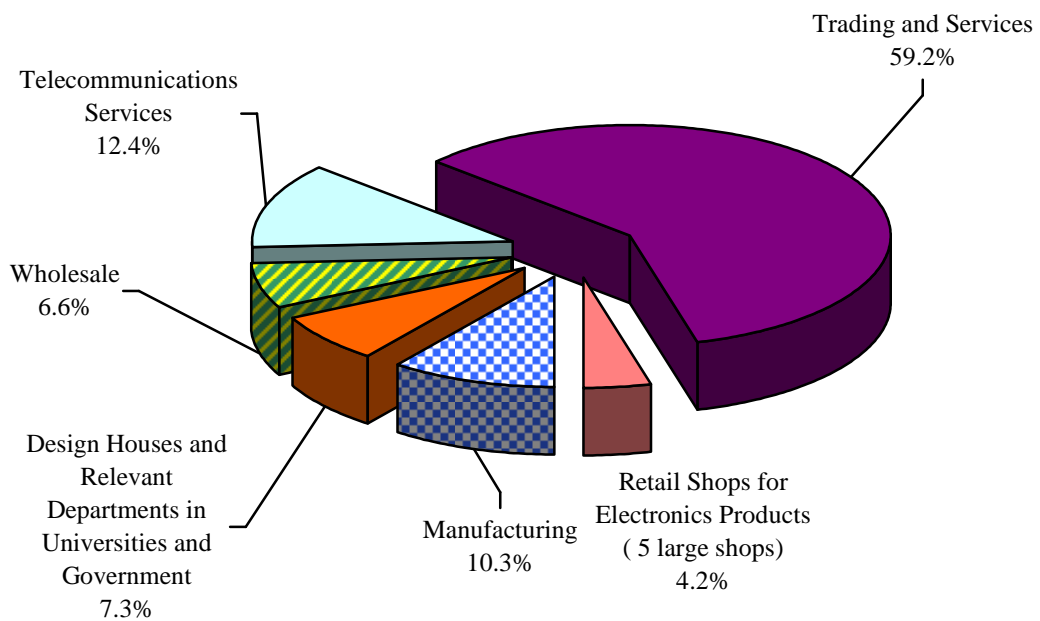


Figure 2.2 : Distribution of Employees by Job Sector



Number of Trainees

2.3 At the time of the survey, there were 799 trainees in the electronics industry. Their distribution by job level is shown in Table 2.2:

Table 2.2 : Distribution of Trainees by Job Level

Job Level	No. of Trainees (a)	No. of Employees (b)	Percentage $\frac{(a)}{(b)} \times 100\%$
Technologist	106	11 982	0.9%
Technician	334	36 536	0.9%
Craftsman	359	6 210	5.8%
Operative	-	3 903	0%
Total	799	58 631	1.4%

Number of Vacancies at Time of Survey and Forecast Manpower by April 2013

2.4 The total number of job vacancies was 1 431, or 2.4% of the total number employed in the electronics industry at the time of the survey. Employers also forecast that there would be 60 338 employees in the industry by April 2013, which is 1 707 employees (1.5%) more than that in April 2012.

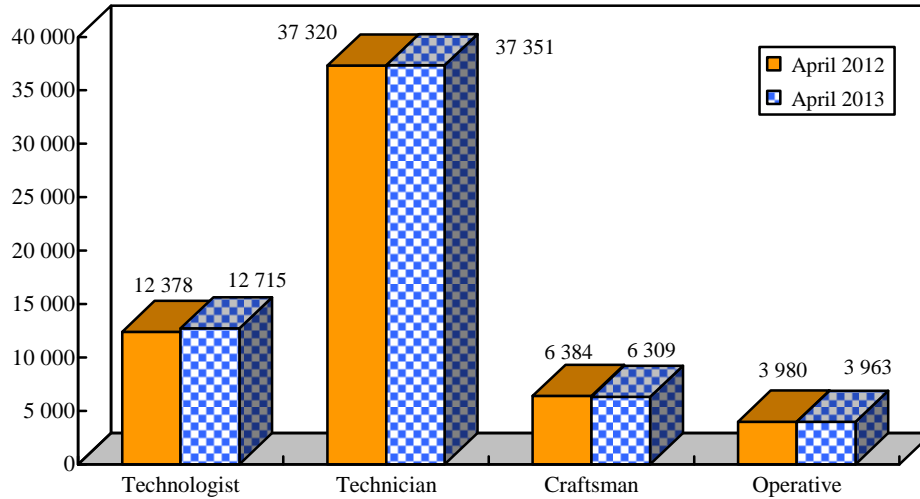
2.5 A comparison of the manpower requirement at the time of survey and the employers' forecast of the number of employees by April 2013 is shown in Table 2.3 and Figure 2.3:

Table 2.3 : Comparison of Manpower Requirement by April 2012 and April 2013

Job Level	At Time of Survey (April 2012)			Forecast Total No. of Employees by April 2013	Forecast Increase/Decrease in Manpower Requirement
	No. of Employees	No. of Vacancies	Total Manpower Requirement		
Technologist	11 982	396	12 378	12 715	+2.7%
Technician	36 536	784	37 320	37 351	+0.1%
Craftsman	6 210	174	6 384	6 309	-1.2%
Operative	3 903	77	3 980	3 963	-0.4%
Total	58 631	1 431	60 062	60 338	+0.5%

Figure 2.3 : Comparison of Manpower Requirement by April 2012 and April 2013

Manpower Requirement



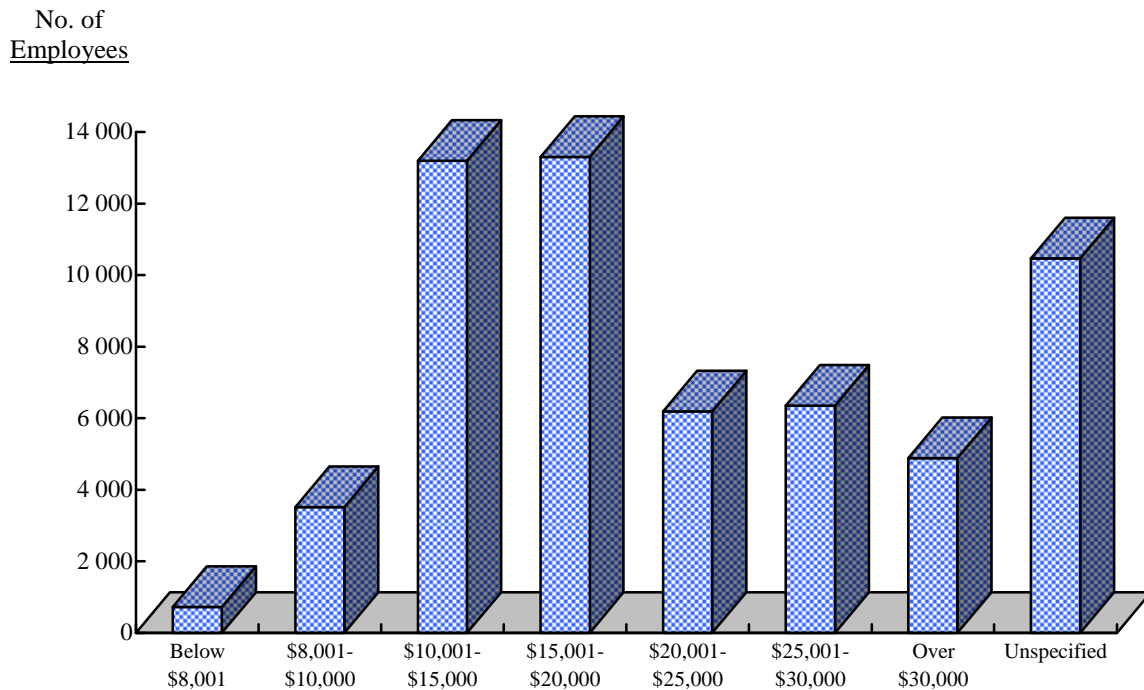
Total Monthly Income Range of Employees

2.6 The distribution of employees by total monthly income range in the electronics industry is shown in Table 2.4 and Figure 2.4:

Table 2.4 : Distribution of Employees by Total Monthly Income Range

Job Level	Below \$8,001	\$8,001-\$10,000	\$10,001-\$15,000	\$15,001-\$20,000	\$20,001-\$25,000	\$25,001-\$30,000	Over \$30,000	Un-specified
Technologist	-	-	32	1 142	1 333	3 551	3 711	2 213
Technician	54	627	9 101	11 734	4 704	2 802	1 173	6 341
Craftsman	64	1 024	3 899	427	-	-	-	796
Operative	603	1 866	160	-	154	-	-	1 120
Total	721	3 517	13 192	13 303	6 191	6 353	4 884	10 470

Figure 2.4 : Distribution of Employees by Total Monthly Income Range



Preferred Education, Mode of Training and Period of Training of Employees

2.7 The majority views of employers on the preferred education, mode of training and period of training of their technologists, technicians and craftsmen are shown in Table 2.5:

Table 2.5 : Preferred Education, Mode of Training and Period of Training of Employees

Job Level	Preferred Education	Preferred Mode of Training	Preferred Period of Training
Technologist	Degree/ Associateship or equivalent	On-the-job Training	3 – 4 years
Technician	Certificate	On-the-job Training	2 – 3 years
Craftsman	Craft Certificate	On-the-job Training	2 – 3 years

Internal Promotion

2.8 In the twelve months prior to the survey, a total of 369 employees were promoted to higher level jobs in their own companies. Their distributions in each job level are shown below:

Table 2.6 : Internal Promotion

Internal Promotion	No. of Employees Promoted (a)	Total No. of Employees at the Promoted Level (b)	Percentage $\frac{(a)}{(b)} \times 100\%$
From Technician to Technologist	133	11 982	1.1%
From Craftsman to Technician	235	36 536	0.6%
From Other Levels to Craftsman	1	6 210	0.02%
Total	369	54 728	0.7%

Employees Deployed to Work Outside Hong Kong

2.9 Employers reported the following number of employees who had been deployed to work outside Hong Kong for more than 6 months during the 12 months prior to the survey:

Table 2.7 : No. of Employees Deployed to Work Outside Hong Kong

Job Level	No. of Employees Deployed to Work Outside Hong Kong (a)	Total No. of Employees at Same Job Level (b)	Percentage $\frac{(a)}{(b)} \times 100\%$
Technologist	633	11 982	5.3%
Technician	535	36 536	1.5%
Craftsman	1	6 210	0.02%
Total	1 169	54 728	2.1%

Skills Employees Need to Enhance

2.10 The three most important skills that employees need to enhance are shown in Table 2.8:

Table 2.8 : No. of Employees by Skills Need to Enhance

Job Level	The 3 most important skills that employees need to enhance			
	Order	Code	Skills/ Knowledge/ Attributes	No. of Employees
Technologist	1.	103	Project management	2 417
	2.	401	Problem solving	2 366
	3.	107	Leadership skills	2 270
Technician	1.	404	Communication skills	10 611
	2.	401	Problem solving	9 499
	3.	411	Customer services skills	9 320
Craftsman	1.	401	Problem solving	1 871
	2.	404	Communication skills	1 855
	3.	411	Customer services skills	1 842

Statistical Tables

2.11 Detailed manpower statistics analysed by principal job and by sector of the electronics industry are shown in Appendices 1 to 7. The distribution of employees by their monthly income range is shown in Appendix 8 and the number of employees by skills need to enhance is shown in Appendix 9.

SECTION III

CONCLUSIONS

3.1 The Training Board has carefully examined the survey findings and is of the view that they generally reflect the employment situation of the electronics industry at the time of the survey.

3.2 With the inclusion of three new HSICs in Sector 2 (Trading & Services), the total manpower in principal jobs of electronics and related disciplines of the industry has increased by 6.1% per annum from 52 115 workers in 2010 to 58 631 in 2012. An analysis of the manpower changes by sector and by skill level is detailed in the following paragraphs. In Sector 6 (Retail Shops for Electronics Products), only the manpower of 5 Retail Shops for Electronics Products was surveyed and it was not a full survey on the sector. Thus, for a better and direct manpower comparison, Sector 6, same as Sector 2 is not included in the analysis but the 2010 and 2012 manpower of both Sectors are shown separately in Table 3.2 for reference purpose. As a whole, the distribution and comparison of manpower in 2012 and 2010 by skill level and by sector is summarized in Table 3.1 below:

Table 3.1 : Comparison of Manpower in 2012 by Skill Level and by Sector with the Manpower in 2010 (shown in bracket)

<u>Skill Level</u>	<u>Sector 1</u>	<u>Sector 3</u>	<u>Sector 4</u>	<u>Sector 5</u>	<u>Total</u>	<u>Annual Change</u>
	<u>Manufacturing</u>	<u>Telecom Services</u>	<u>Wholesale</u>	<u>Design Houses & Govern't Dept.</u>		
Technologist	956 (998)	2 200 (2 212)	293 (314)	904 (874)	4 353 (4 398)	-0.5%
Technician	2 432 (2 283)	4 337 (4 441)	3 202 (1 663)	2 333 (2 363)	12 304 (10 750)	+7.0%
Craftsman	551 (1 166)	609 (945)	274 (572)	962 (1 083)	2 396 (3 766)	-20.2%
Operative	2 113 (2 559)	133 (144)	108 (50)	95 (135)	2 449 (2 888)	-7.9%
Total	6 052 (7 006)	7 279 (7 742)	3 877 (2 599)	4 294 (4 455)	21 502 (21 802)	-0.7%
Annual Change	-7.1%	-3.0%	+22.1%	-1.8%	-0.7%	

Table 3.2 : Comparison of Manpower in 2012 by Skill Level and by Sector with the Manpower in 2010 (reference)

Sector 2 – Trading and Services

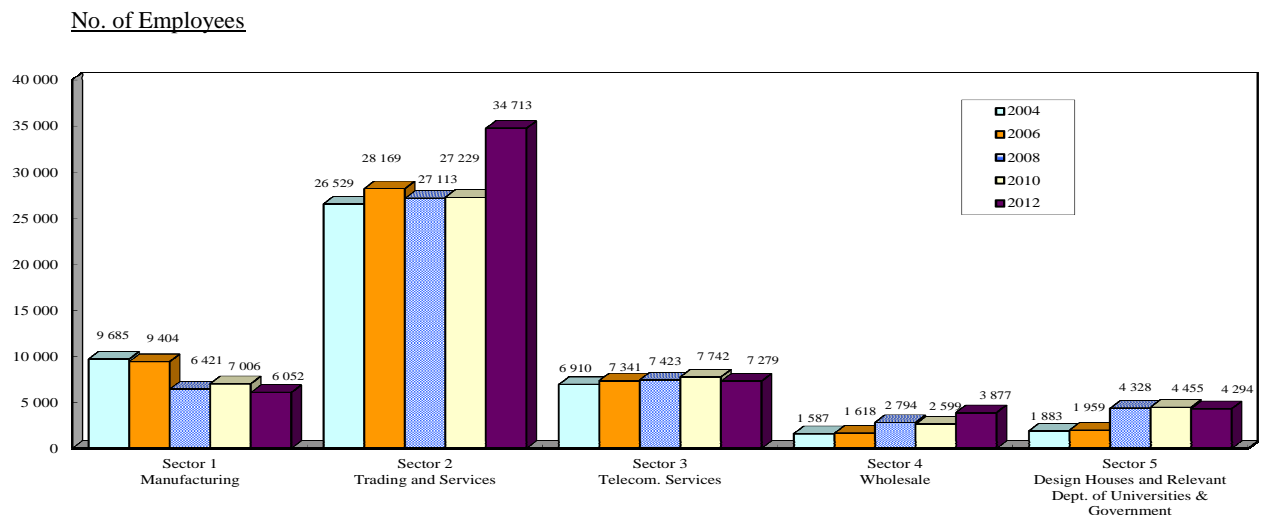
<u>Year</u>	<u>Technologist</u>	<u>Technician</u>	<u>Craftsman</u>	<u>Operative</u>	<u>Total</u>	<u>Annual Change</u>
2012	7 621 (+1.29)	21 824 (18.9%)	3 814 (+0.6%)	1 454 (+56.6%)	34 713	+12.3%
2010	7 428	15 441	3 767	593	27 229	+0.2%

Sector 6 – Retail Shops for Electronics Products

<u>Year</u>	<u>Technologist</u>	<u>Technician</u>	<u>Craftsman</u>	<u>Operative</u>	<u>Total</u>	<u>Annual Change</u>
2012 (5 large shops for electronics products)	8 (+6.9%)	2 408 (-8.6%)	-	-	2 416	-11.5%
2010 (9 large shops for electronics products)	7	2 885	-	-	3 084	+3.5%

3.3 Figure 3.1 shows the manpower changes by sector of the industry between 2004 and 2012. It also demonstrates the manpower change of the electronics industry during the past several years since the scope of the manpower survey of the industry has been revised significantly.

Figure 3.1 : Manpower Changes by Sector
between 2004 and 2012



Manpower Changes by Sector

3.4 Table 2.1 reveals that the manpower of Sector 2 -- Trading & Services (34 713) covered about 59.2% of the total manpower (58 631) of the electronics industry in 2012, while that of Sector 6 – Retail Shops for Electronics Products (2 416) held 4.1%. Table 3.1 shows that the total manpower (21 502) of the rest of the four Sectors (1, 3, 4 and 5) took up the remaining 36.7% of the total manpower, resulting an annual decrease of 0.7% or 300 workers, over the past two years. It recorded an annual decrease of 7.1% in Sector 1 – Manufacturing, a mild decrease of 3.0% and 1.8% in Sector 3 – Telecommunication Services and Sector 5 – Design Houses and Government Departments respectively. As a whole, a very mild annual decrease of 0.7% in the overall manpower of the four Sectors.

3.5 The followings attributed to the manpower changes by sector:

- (i) The annual manpower decrease in Sector 1 was mainly due to some large companies closed their manufacturing services, i.e. a total of 22 companies with employment size of 50 and over comparing with 32 in 2010;
- (ii) Although it is only for reference, a substantial annual manpower increase of 12.3% was obtained in Sector 2 due to the inclusion of three new HSICs. It seemed that there was a growth in engineering services in the past two years. The sharp annual decrease of manpower of 11.5% recorded in Sector 6 was the result of the number of companies surveyed from nine in 2010 reduced to five in 2012 due to a poor response of the companies in the Sector;
- (iii) In view of continuous demand of new telecommunication services in the past two years, the manpower of Sector should record an annual increase but an annual decrease of 3.0% was

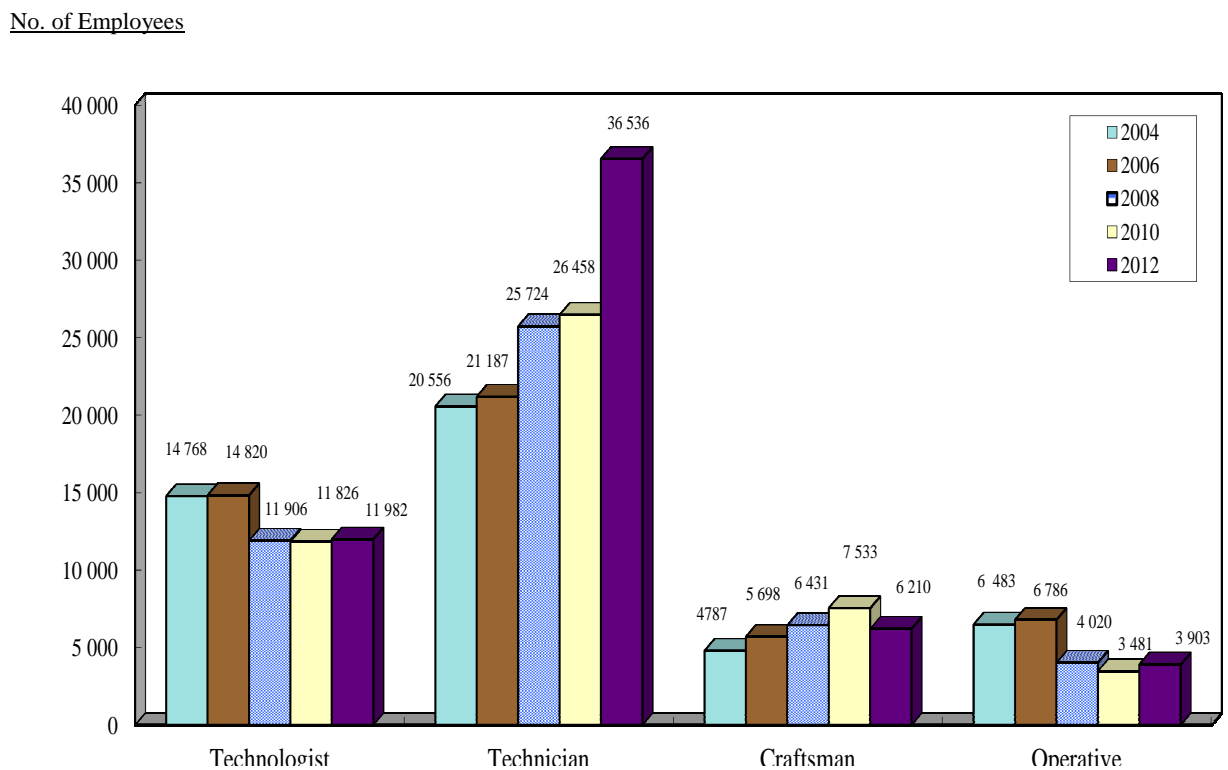
recorded. It was because some telecommunication companies registered their business under Sectors 2 and 4 rather than Sector 3. In the past two years, the steady manpower engaged in the engineering departments of the universities and Government departments constituted the major manpower demand in Sector 5. However, less number of design houses included in the survey caused the very mild manpower decrease in Sector 5. In general, the manpower required by design houses was stable; and

- (iv) The sharp annual increase of 22.1% of manpower in Sector 4 mainly reflected that the sector was benefitted from the continuous increase in tourists visiting Hong Kong. Compared with 2010, 21 more companies were added to the sector and among them six were large companies with employment size of 50 or over. More and more wholesale companies employed more staff to promote their goods and services to customers in different branches of the retail shops selling electronics products.

Manpower Changes by Job Level

3.6 The manpower change by job level from 2004 to 2012 is shown in Figure 3.2:

Figure 3.2 : Manpower Changes by Job Level between 2004 and 2012



3.7 Figure 3.2 shows the slightly annual decrease (0.5%) of manpower in technologist, significant annual decrease (20.2%) in craftsman and (7.9%) in operative workers. It also records the continuous annual increase (7.0%) in technician between 2010

and 2012. Although it is only for reference, it is worth noticing that there was an annual increase of manpower in all skill levels in Sector 2, properly due to the inclusion of three new HSICs in the Sector. On the other hand, a substantial annual decrease of manpower in Sector 6 was resulted as the total number of companies surveyed was reduced by four when compared with that of 2010. The followings attributed to such manpower changes by job level:

- (i) The very mild annual decrease of 0.5% of technologists might be due to the continuous restructuring of the wage level of technologists and technicians to cope with the business environment in Sector 1 of the electronics industry over the past two years. Also, it was the result of shifting certain amount of technologists and technicians as well as craftsmen to Sectors 2 and 4 as some companies in Sector 3 registered their business nature under the two Sectors. The increase of technologists in Sector 5 was the result of continuous demand for electronics design products, steady IC design business as well as Apps design, which usually required high skill level workers;
- (ii) The annual increase of 7.0% of technician was attributed by the same reason mentioned in (i). Besides, the survey also revealed that a sharp annual increase (38.8%) in sales technicians in Sector 4; and
- (iii) The significant annual decrease of 20.2% of craftsmen was mainly due to the general decrease in craftsmen across the four Sectors, especially the large decrease of manpower of over 30% in Sectors 1 and 4 respectively.

Business Outlook

Whole Industry

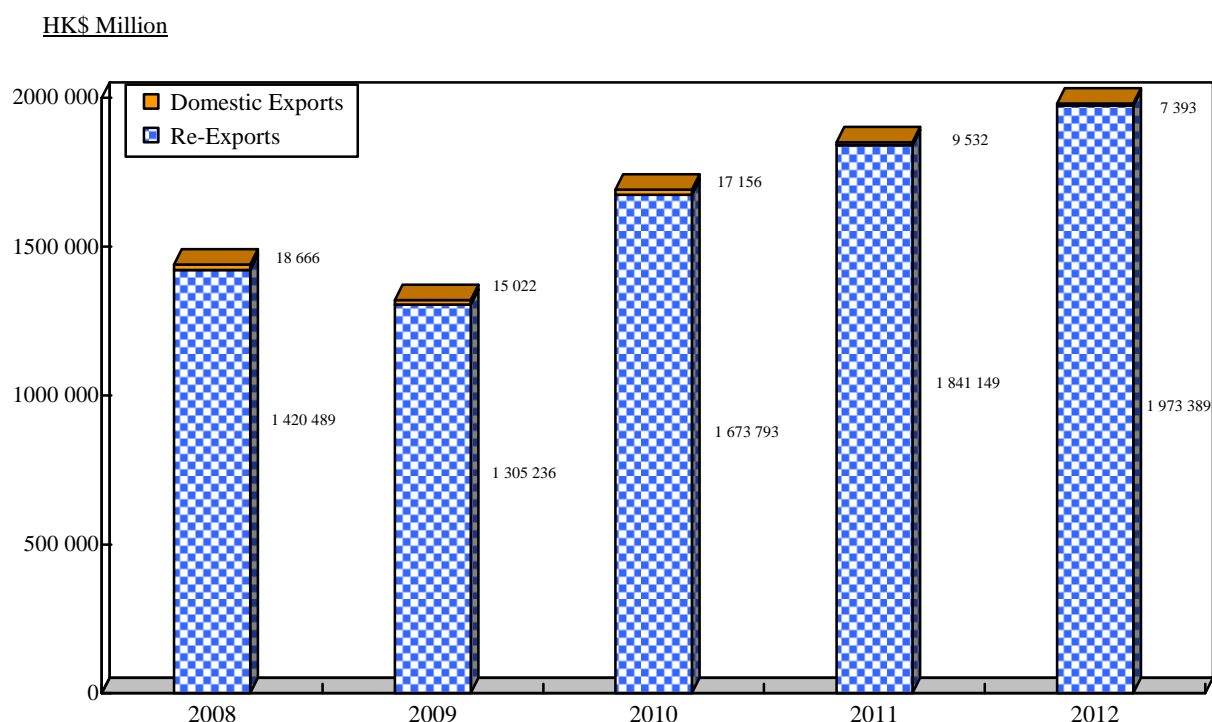
3.8 The electronics industry is still the largest local merchandise export earner, contributing 58% of Hong Kong's total export in 2012. Hong Kong's economy is forecasted to continue to grow by 1.5 to 3.5% in 2013. It is mainly due to continuous expansion of the Mainland in outward processing production and the resurgence of consumer demand for various electronics products, parts and components in the United States of America, ASEAN and Japan. In 2012, the total exports of electronic products increased by 7% over the previous year to HK\$1,980,782 million. Details of the export values of electronic products between 2008 and 2012 are shown in Table 3.3 and Figure 3.3.

Table 3.3 : Export Values of Electronic Products

Electronic Products	Value (HK\$ Million)				
	2008	2009	2010	2011	2012
Domestic Exports	18 666	15 022	17 156	9 532	7 393
Re-Exports	1 420 489	1 305 236	1 673 793	1 841 149	1 973 389
Total Exports	1 439 155	1 320 258	1 690 949	1 850 680	1 980 782

Source :Hong Kong External Merchandise Trade Statistics, Census and Statistics Department

Figure 3.3 : Export Values of Electronic Products



3.9 With the existing benefit of zero imported tariffs in the Mainland since the implementation of the seventh phase of the Mainland and Hong Kong Closer Economic Partnership Arrangement (CEPA VII) in May 2010, and the reveal of China 12th Five-Year Plan in March 2011, the opening of the Mainland market further provides considerable opportunities for Hong Kong firms. On the other hand, the Supplement IX to CEPA signed on 29 June 2012 provided for a total of 43 services liberation and trade and investment facilitation measures. The measures, taken effective from 1 January 2013, will further strengthen Hong Kong and the Mainland in areas of finance, trade as well as investment facilitation and also enhance the mutual recognition of professional qualifications of the two parties.

3.10 The Hong Kong electronics industry had a steady growth in the past two years. However, the continuous sharp increase of the appreciation of Renminbi, rise in wage, taxes and duties, and price increase in energy and materials cause a great challenge to the industry. The shortage of workers in the Pearl River Delta is another threat. On the other hand, the implementation of the Mainland's Labour Contract Law together with Processing Trade Policy becomes essential operating cost items. The growing popularity of green concept together with compliance with safety requirements resulting the tightening of environment laws in China and other countries, including the China Compulsory Certification (CCC), Directive on WEEE (Waste Electrical and Electronic Equipment, the Directive on RoHS (Restriction of Hazardous Substances) and European Union law on chemicals – REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals), had imposed great pressure on Sector 1 (Manufacturing) in the past years. It is expected that such pressure will continue in the coming years.

3.11 The United States (US) Federal Reserve continues to keep short-term interest rates at rock-bottom levels aiming to drag down unemployment. The Federal Reserve also keeps buying US\$85 billion a month in bonds hoping to a better economy. In Europe, the on-going Euro debt crises will further damage the European economy. The above situation will impose certain effects on the electronics industry in the coming years.

3.12 Blessed from the continuous economic growth in the Mainland and increasing number of tourists to Hong Kong, the local economy is forecasted to continue to grow. As a result, the close business nature of Sector 2 (Trading & Services), Sector 4 (Wholesale) and Sector 6 (Retail Shops for Electronics Products) will be benefitted from the growth. In Sector 3 (Telecommunication Services), the Training Board considers that it will be quite stable as new telecommunication services will continue to provide to the public. The 4th generation of mobile communication services will be more mature and attract substantial number of users. The rapid growth of purchase via Internet as well as emerging smart digital home service (linking all home appliances and installations easy for centrally control to further reduce carbon dioxide emissions), e-learning market and i-cloud service (both public and personal or a mix of the two) are the other key development areas in Sector 3.

3.13 Hong Kong will continue to be a popular sourcing centre for parts and components as well as high-end consumer electronics products. In view of the continuous increase in electronics vehicle production in the Mainland and other countries, there will be a growing demand of batteries, battery chargers, car audio and related products as well as electronics components in automobiles. The merits of LEDs (Light Emitting Diodes) in light weight, small size, long life operation, energy saving and easy to control, make them further widely adapted in various application areas like road signage, message board, lighting and displays. The other type LED, active-matrix organic light emitting diode (AMOLED), will continue to be commonly used in displays for mobile devices and televisions in the years to come.

3.14 The Training Board considers that the design houses in Sector 5 will stick at developing their own products as to match the latest technological development in the industry and to maintain their competitiveness in the market. IC design will maintain its valuable contributions to the manufacturing sector. In view of the well protection of intellectual property in Hong Kong and vast design experience with good reputations, the IC design sector will continue to grow in future. The development of various Apps as valued added services via different Apps stores will become an important growing factor in this Sector.

Product Trend

3.15 Since the introduction of the Apple iPad in April 2010, it was so well accepted by the public over the world. iPad has stirred up the PC market that many electronics firms have designed the similar products in the market. The similar tablet personal computer (PC) of different types equipped with special features of a large multi-touch liquid crystal display (LCD) screen, Wi-Fi (Wireless Fidelity, wireless LAN) and 3G (cellular HSDPA (High Speed Download Packet Access)) connectivity and voice recording become more popular. The tablet PC is also a multimedia platform for e-books, e-magazines, music, web contents, movies and games. It is also an essential hardware tool for e-education and e-learning. In light of the increasing popularity of tablet PCs and sales declining of netbook PCs worldwide, it is expected the tablet PCs will soon take over netbook PCs. On the other hand, more notebook PCs with powerful features like high speed wireless connectivity, power saving, USB 3.0 socket, multimedia, multi-touch LED display, video conferencing, GPS (Global Positioning System) and cloud computing function, will be the trend and they are expected to grow in the coming years. Also, the general computer peripherals such as USB 3.0 flash drives, webcams, speakers, scanners and printers with additional features (including WiFi communication) are still in large demand and some of them are fancy designed to catch more market shares.

3.16 Amid the rapid growth of broadband Internet access, “wireless connection at anywhere and anytime” already becomes a common wireless application concept in mobile Internet devices like smartphones. In addition to its normal features of MP3, voice recording, radio and HD camera shooting, the smartphone is installed with special features like touch panel, 4G/LTE (Long Term Evolution) communication, WiFi communication, i-cloud storage of data, multimedia playback functions, GPS, video conferencing and Internet surfing. The introduction of Apps service makes them more acceptable by the public, especially the youngsters, and such service is expected in great demand. As a result, many electronics companies have designed different types of smartphones with different operating systems (Android, iOS, Symbian, Linux, Windows Phone 7/Windows Mobile, BlackBerry and others) and features to enhance their market shares. More smartphones with various advanced features and interfaces of faster communication and higher data transfer rate are in growing demand.

3.17 For consumer electronics products, especially in the audio-visual sector, digitalization with portability and convergence is already the trend. In particular, digital camcorders and digital cameras with enhanced features like WiFi communication, motion detector, touch screen and 3D (Three Dimension) are in strong demand. On the other hand, the simplified low-cost version digital single-lens reflex cameras (DSLR) for high-definition (HD) resolution shooting will become more popular in the market. With the rapid development of e-Publishing, e-Book readers installed with additional features such as radio, digital voice recording and MP3 (MPEG-2 Audio Layer III) will continue to grow in the coming years. The other important market is home/personal multimedia entertainment sector. Blue-ray DVD player and recorder will gradually replace DVD player and recorder in few years. Also, 3D display technology and standard have a great impact on different electronics devices like 3D monitors, naked-eye 3D monitors, 3D home theaters, 3D camcorders and 3D amplifier.

3.18 The launch of digital television broadcasting service in Hong Kong starting from 31 December 2007 has covered nearly every part of the city and it is well accepted by the public. The large screen HD (high resolution: 1 920 x 1 080 pixels) and UHD (ultra-high resolution 4K: 3 840 x 2 160 or 4 096 x 2 160 pixels) digital LCD TV with the special features of WiFi communication and 3D display are still expected to be in strong demand in the coming years. It also becomes a key element for home theater. The common HD digital TV installed with large LED-backlight LCD or AMOLED screen and built-in 3D effect, Internet surfing and recording functions (aiming for more entertainment and future commercial activities) is still customers' favour. On the other hand, the mobile TV has been launched, which will be a hot entertainment product in the coming years. As the digital audio broadcast (DAB) services in Hong Kong started in late December 2012, the radio set for DAB will be another potential hot product in the market.

3.19 The other popular products such as health care electronics products and systems -- using ICT (Information Communication Technology) to connect homes with hospitals / clinics allowing doctors to work more efficiently, long-life batteries (especially those used in the e-Car) and energy saving LED lighting are expected to grow. On the other hand, with the continuous introduction of new video game stations with popular applications such as Internet surfing, 3D display and multi-touch HD screen, the electronics toys and games are still the demanding products both for youngsters and adults.

3.20 In view of the development of eco ideas living environment, energy creation and storage with solar power generators and fuel cells and stored in Li-ion batteries are essential systems/components.

Future Manpower Demand

3.21 Based on the manpower trend, business outlook of the electronics industry and employers' forecast of future manpower requirements, the Training Board believes that in the years ahead, there will be an on-going demand for well-trained technologists and technicians to maintain the development of the electronics industry. However, the demand for craftsmen and operatives (manufacturing) will be limited.

3.22 In view of the latest development of the industry, the Training Board has also estimated the loss of manpower at different job levels due to workers leaving the electronics industry through retirement, migration to other industries and other causes. The Training Board has decided that the normal annual wastage rate of 3% be used for the loss of manpower at the technologist, technician and craftsman levels.

3.23 The Training Board has estimated, by using the Adaptive Filtering Method for the manpower projection for the technologist and technician levels. As there was a sharp decrease of craftsman, the Training Board has considered that the manpower demand of craftsman will be just for training of wastage. The additional manpower required by the electronics industry for 2013 – 2015 is summarized in Table 3.4 below. A breakdown of the training requirements into principal jobs is shown in Appendix 10.

Table 3.4: Annual Manpower Demand in the Electronics Industry from 2013 to 2015

Job Level	Annual Average Additional Demand for Employees	
	Total	±10% Range
Technologist	436	392 - 480
Technician	2 204	1 984 – 2 425
Craftsman	188	169 - 207

3.24 The Training Board will conduct another manpower survey of the electronics industry in 2014 to review and update the manpower requirements of the industry.

SECTION IV

RECOMMENDATIONS

4.1 The Hong Kong electronics industry maintains the largest local merchandise export maker, contributing 58% of Hong Kong's total export in 2012. Hong Kong's economy is forecasted to maintain to grow by 1.5 to 3.5% in 2013. However, the continuous sharp increase of the appreciation of Renminbi, rise in wage, taxes and duties, and price increase in energy and materials cause a great challenge to the industry. The shortage of workers in the Pearl River Delta is another threat. As a result, many manufacturing companies plan to relocate their production lines to a lower-cost country. On the other hand, the United States (US) Federal Reserve continues to keep short-term interest rates at rock-bottom levels to help lower unemployment. The Federal Reserve also keeps buying US\$85 billion a month in bonds hoping to a better economy. In Europe, the on-going Euro debt crises will further damage the European economy. Also in March 2011, the Mainland revealed its 12th Five-Year Plan which will boost its domestic consumer demand and lift up the level of urbanization. The Plan will also provide considerable opportunities for Hong Kong firms. The Supplement IX to CEPA signed on 29 June 2012 provided for a total of 43 services liberation and trade and investment facilitation measures. The measures, taken effective from 1 January 2013, will further strengthen Hong Kong and the Mainland in areas of finance, trade as well as investment facilitation and also enhance the mutual recognition of professional qualifications of the two parties. In view of the above, the Training Board has a cautious optimistic view that the electronics industry will continue to grow. Thus, the Training Board recommends the following measures for employers to consider coping with present situation and challenges ahead:

- (i) To re-engineer, streamline and diversify business to make company more effective and efficient than before;
- (ii) To develop more creative, value-added, cost effective and green products / services to increase competitive ability;
- (iii) To further strengthen the overall skill level and competency of the staff, especially the technical workforce, through appropriate training in order to become a much stronger and competitive organisation;
- (iv) To carry on to explore new business in the most cost effective way so as to strengthen market share; and
- (v) To continue to maintain and to deepen strong partnership with important customers and to establish new partnership with potential customers.

4.2 Regarding the strength of skill and competency of staff, the Training Board suggests that on top of the individual company's training needs, the "Skills an Employee Need to Enhance" at Appendix 9 will be a good reference on various aspects of training for employers. In this particular situation, employers are recommended to step up their training efforts in order to ensure supply of well-equipped manpower to meet the challenges and business opportunities ahead. The Training Board also recommends Vocational Training Council and other training organizations to keep a close view on the above training needs of the electronics industry and provide such needs in time.

Annual Intake of Trainees

4.3 At the time of the survey, there were only 106, 334 and 359 trainees respectively at the technologist, technician and craftsman levels. Since it normally takes two to four years to train a technologist and three to four years a technician or a craftsman, it is evident that the present training efforts provided by employers are insufficient to satisfy the industry's needs.

4.4 The Training Board recommends that the industry as a whole should embark on a training programme of a scale as set out in paragraph 3.23 for 2013 – 2014. A breakdown of the training requirements into various principal jobs is given at Appendix 10. For manpower planning at company level, individual employers are requested to note that the volume of training when expressed in terms of existing manpower represents an average annual intake of trainees of about 3.6%, 6.0% and 3.0% respectively of the total number of technologists, technicians and craftsmen presently employed.

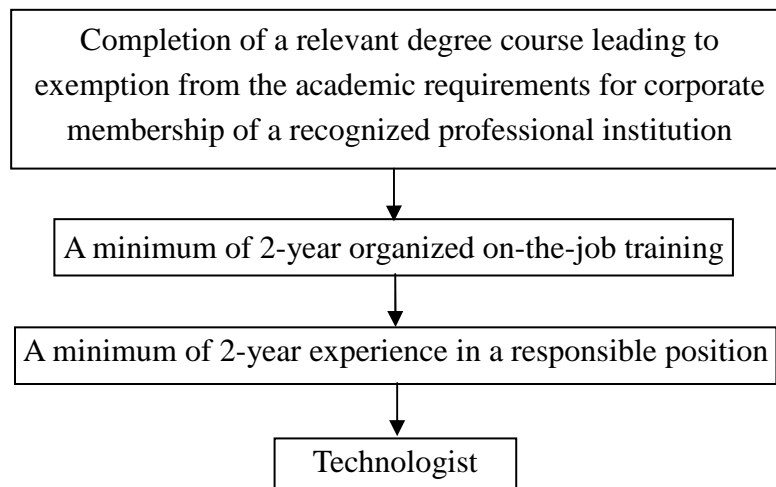
4.5 The recommended training routes for technologists, technicians and craftsmen are outlined in the following paragraphs.

Training of Technologists

4.6 A technologist is a person who has the qualifications and experience equivalent to those required for corporate membership of a professional institution. He should be competent in analyzing and solving a wide range of technical problems. Furthermore, he should be able to assume personal responsibility for the development and application of engineering principles, exercise original thought and judgment, follow progress in his field of technology, apply the latest techniques, supervise and develop his sub-ordinates.

4.7 Technologists play an important role in bringing about improvement in management and technological innovations. The Training Board recommends that technologists should be trained via the following route:

Figure 4.1 : Training of Technologists



4.8 A number of local educational institutions funded by the University Grants Committee (UGC) offer various degree courses in electronic engineering and related disciplines. The following table shows the estimated number of graduates from these full-time engineering degree courses in 2013/14 and 2014/15:

Table 4.1: Estimated Number of Graduates from UGC-funded Institutions in 2013/14 and 2014/15

Full-time Degree Programme	Estimated Number of Graduates	
	2013/14	2014/15
Electronic Engineering	361	334
Computer Engineering	172	201
Information engineering	96	100
Electronic and Communication Engineering	101	97
Electronic and Information Engineering	84	102
Internet & Multimedia Technology	36	31
System Engineering & Engineering Management	95	87
Total	945	952

4.9 The forecast demand for related technologist level jobs (Electronics Engineer, Manufacturing/QA Engineer and System Analyst) in the industry is about 328 – 402 annually in the next three years. The supply of graduates from electronic engineering and related disciplines should be able to meet the forecast demand. In general, the graduates also take up electronics engineering and related jobs in other industries such as electrical and mechanical services, information technology and manufacturing.

Engineering Graduate Training Scheme (EGTS)

4.10 To bring about more well-structured practical training opportunities in local industries for engineering graduates, the Committee on Training of Technologists of the Vocational Training Council is operating a subsidized training scheme to provide engineering graduates with 18 months practical training of a standard acceptable for corporate membership of the Hong Kong Institution of Engineers. Each graduate receiving training under the scheme is granted a subsidy through his employer as part of his salary and the training progress is monitored by the Committee.

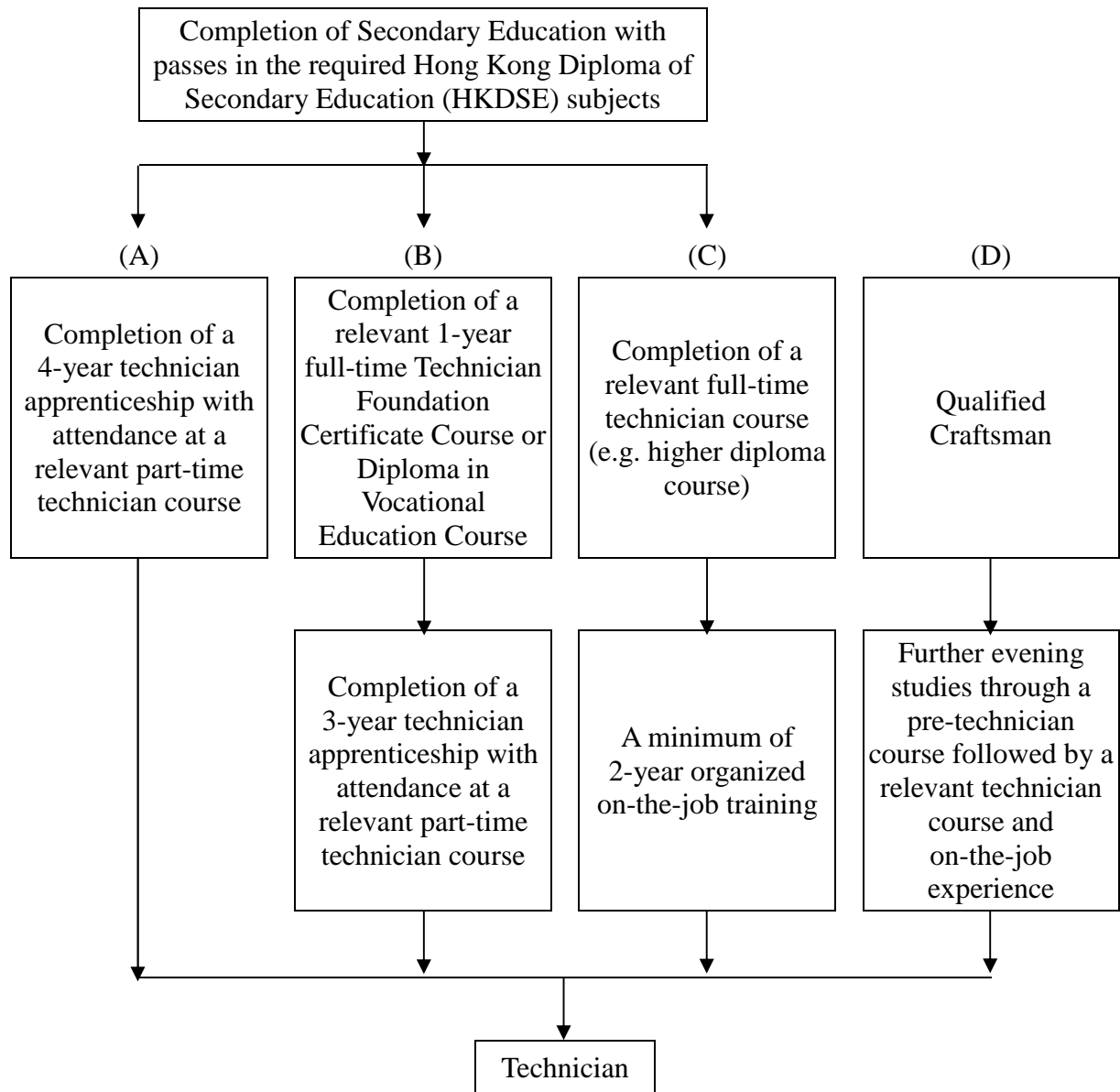
New Technology Training Scheme (NTTS)

4.11 Since 1992, the Vocational Training Council has been operating the New Technology Training Scheme to provide assistance to companies in Hong Kong that wish to have their staff trained in a technology that would be useful to their business. In the context of the scheme, new technologies include those which are not widely applied in Hong Kong and the absorption and application of which will benefit Hong Kong. Any employer in Hong Kong wishing to acquire a new technology for industrial and commercial application may apply for training grant under the Scheme. The Training Board encourages companies to make good use of the Scheme.

Training of Technicians

4.12 A technician is one who occupies a position between the technologist and the craftsman. His education, training and practical experience should enable him to apply proven techniques to solve technical problems. He is expected to carry a measure of technical responsibility, normally under the guidance of a technologist. The routes available for training technicians are shown in Figure 4.2.

Figure 4.2: Training of Technicians



4.13 The Hong Kong Polytechnic University and the Hong Kong Institute of Vocational Education (IVE) of the VTC offer a range of higher diploma courses in electronic engineering and related disciplines. The following table shows the estimated number of graduates from the relevant full-time higher diploma courses of these two institutions:

Table 4.2: Estimated Number of Higher Diploma Graduates
in 2013/14 and 2014/15

Full-time Higher Diploma Programme	Estimated No. of Graduates	
	2013/14	2014/15
Electronic and Communications Engineering	176	127
Electronic & Information Engineering	50	49
Digital TV and Motion Picture Engineering	25	0
Computer Engineering	96	96
Computer and Information Engineering	88	51
Multimedia Design & Technology	126	102
Total	561	425

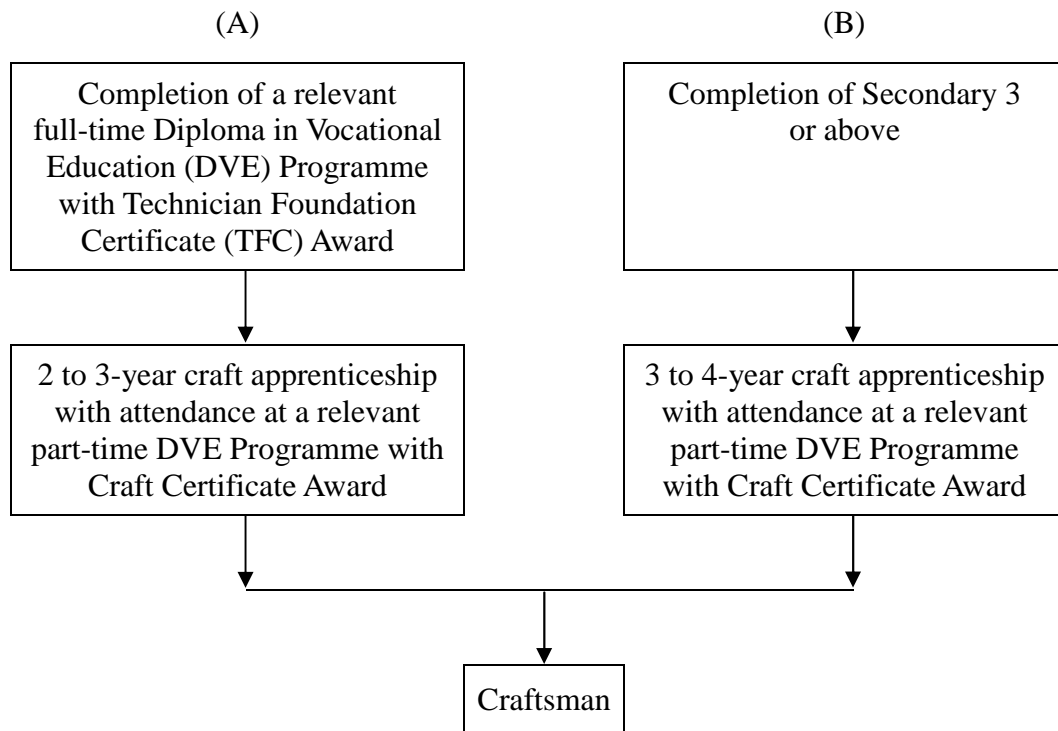
4.14 The Pro-Act Training and Development Centre (Electronics) collaborates with Youth College of the VTC to offer a 1-year full-time Diploma in Vocational Education (DVE) Awards of a DVE Programme – Digital Electronics Technology for Secondary 6 school leavers. The estimated number of graduates from the course is about 75 from 2013/2014 onwards.

4.15 The forecast demand for related technician level jobs (Electronics Technician, Sales Technician, Draughtsman, Manufacturing/QA Technician, Programmer, and Web Developer/Designer) in the industry for 2013/2014 is 1 775 – 2 168 annually. The total supply of Higher Diploma graduates and Diploma in Vocational Education graduates is about 630 which is lower than the forecast demand. However, some of the technician jobs may be filled by the training of secondary school leavers through apprenticeship and internal promotion of experienced craftsmen. It is noted that there were 334 technician trainees in the industry at the time of the survey, and a total of 235 employees were promoted to the technician level jobs in the twelve months prior to the survey.

Training of Craftsmen

4.16 A craftsman is a skilled worker who is able to apply a wide range of skills to his work with minimum direction and supervision. He requires not only practical skills but also related theoretical knowledge to enable him to adapt himself to new technologies. A proper craft apprenticeship would contain both components. The common routes for training craftsmen are shown in Figure 4.3:

Figure 4.3: Training of Craftsmen



4.17 The Training Board recommends route (A) because the apprenticeship period is shorter and the apprentices have already undergone proper basic training and would be productive right from the start of their apprenticeship.

4.18 The Pro-Act Training and Development Centre (Electronics) works in collaboration with Youth College of the VTC to offer a Multi-Entry-Multi-Exit (MEME) Diploma in Vocational Education (DVE) Programme – Digital Electronics Technology for Secondary 3 school leavers. Some 200 students of the DVE are planned to receive training on competence and award of craftsman for respective jobs in the electronics industry. The forecast demand for related craft jobs (Cable Joiner/Wireman, and Electronics Craftsman) in the industry for 2013/2014 is 130 – 159 annually. The output from the Pro-Act Training and Development Centre (Electronics) is various as the graduates could choose further study instead of serving the industry. However, there were 359 craft trainees in the industry at the time of the survey and a total of one employee were promoted to the craftsman level jobs in the twelve months prior to the survey. The total craftsmen available will be 360, which exceeds the demand. In general, the graduates also take up electronics craftsman jobs and related jobs in other industries such as electrical and mechanical services, building services and manufacturing.

Educational and Training Institutions

4.19 The Hong Kong Institute of Vocational Education of the VTC and the Pro-Act Training and Development Centre (Electronics), as well as several tertiary institutions, offer a wide range of pre-employment and in-service training courses for workers in the electronics industry. The Training Board strongly urges employers in the industry to make full use of the training facilities in these institutions by recruiting their graduates as apprentices/trainees and sponsoring employees to attend relevant upgrading courses.

Hong Kong Science and Technology Parks Corporation

4.20 The Hong Kong Science and Technology Parks Corporation (HKSTP) was established in 2001 by the HKSAR Government to offer one-stop infrastructural support services to technology-based companies and activities in a synergetic manner, ranging from nurturing start-ups through incubation programmes, providing premises and services in the HKSTP for applied research and development activities, creating and sustaining a design cluster in the InnoCentre, to offering land and premises in industrial estates for production. As a whole, the HKSTP provides 20 state-of-the-art laboratory-fitted buildings offering 220,000 square meter office space -- an effective research and development environment and support services to facilitate collaboration and synergy among its 300 tenant companies. Its tenants are under five clusters – engaging in integrated circuits and electronics; precision engineering, biotechnology, green technology and ICT industries. Advanced facilities and services provided include Secure Virtual IP Chamber – EDA & IP Services, IP, MPW & LVP Services, IC Probe & Test Services, Reliability Test Services, IC Failure Analysis Services, Material Analysis Services, Solid-State Lighting Test Services, Wireless Communication Test Lab, Solar Panel Test Services and Biotechnology Support Centre). The Training Board urges employers to make good use of the facilities and services offered by the HKSTP, especially those for IC design.

Training Services of the Vocational Training Council

4.21 The Vocational Training Council offers free services to help employers organize the statutory apprenticeship training schemes through which technicians and craftsmen can be effectively trained to meet the needs of the industry. The Training Board recommends employers to contact the Council for assistance in setting up training schemes and recruiting apprentices/trainees.

- This is a blank page -
- 空白頁 -

電子業 2012 年人力調查報告摘要

緒論

職業訓練局轄下電子業及電訊業訓練委員會（下稱「本會」）於2012年4月進行電子業人力調查，以蒐集業內主要職務的最新人力資料。

2. 本會採用分層隨機抽樣方法，於 7 364 間機構中選出 697 間為調查對象。調查所得資料其後以統計方法倍大，以反映業內的整體人力情況。

調查結果

3. 是次調查顯示，2012 年 4 月，本港電子業共僱用 135 972 人，其中 58 631 人擔任電子工程及相關範疇的主要職務。電子業各類機構內各技能等級僱員的分布情況如下：

表 A： 各類機構各技能等級的僱員分布情況

門類	技能等級				總數
	技師	技術員	技工	操作工	
7. 製造	956	2 432	551	2 113	6 052 10.3%
8. 貿易及服務	7 621	21 824	3 814	1 454	34 713 59.2%
9. 電訊服務	2 200	4 337	609	133	7 279 12.4%
10. 批發	293	3 202	274	108	3 877 6.6%
11. 設計公司、相關的院校學系及政府部門	904	2 333	962	95	4 294 7.3%
12. 電子產品零售公司 (5 間大型公司)	8	2 408	-	-	2 416 4.2%
總數 (佔僱員總數百分率)	11 982 20.4%	36 536 62.3%	6 210 10.6%	3 903 6.7%	58 631 100%

4. 調查期間，僱主填報電子工程及相關範疇共有 799 名受訓者，空缺則有 1 431 個，分別佔業內人力的 1.4% 及 2.4%。僱主亦預測，至 2013 年 4 月時業內將需要 60 338 名員工，較 2012 年 4 月時增加 1.5%（1 707 人）。

人力變化

5. 本業擔任電子業務及相關範疇主要職務的僱員總數，由 2010 年的 52 115 人增至 2012 年的 58 631 人。不過，是次調查門類二（貿易及服務）首次新增 3 個香港標準行業分類（HSIC）。此外，門類六（電子產品零售公司）只有 5 間公司的人力第三度納入調查範圍內，就這個門類的調查尚未全面。因此，為更適當地直接比較各門類的人力情況，門類二及六不在比較之列，兩者共佔業內僱員總數的 63.3%。另外 4 個門類（門類一、三、四及五）僱用其餘 36.7% 共 21 502 人，過去兩年其僱員總數每年減少 0.7%，即 300 人。當中，門類一（製造）每年錄得 7.1% 的僱員人數跌幅，而門類三（電訊服務）及門類五（設計公司、相關的院校學系及政府部門）分別每年微減人手 3.0% 和 1.8%。整體而言，4 個門類的僱員總數每年錄得 0.7% 的極微跌幅。

6 各門類的人力變化原因如下：

- (i) 門類一的僱員人數按年減少，主要由於一些大型公司結束其製造業；當中包括 22 間僱用 50 人以上的公司，而 2010 年則有 32 間。
- (ii) 雖然僅供參考，門類二因新增 3 個 HSIC 而每年大幅增加人手 12.3%。在過去兩年，工程服務業務看似有所增長。此外，由於門類六的公司對於是次調查反應欠佳，接受調查的公司由 2010 年的 9 間減少至 2012 年的 5 間，因此，這個門類錄得每年 11.5% 的急劇人力跌幅。
- (iii) 鑑於過去兩年市場對新電訊服務的持續需求，門類三的僱員人數本應有所增長，但實際卻錄得每年減少 3.0%，原因是有些電訊公司，將其業務登記於門類二及四而非門類三之下。在過去兩年，大學工程院系及政府部門持續吸納人手，構成門類五的主要人力需求。不過，由於是次調查納入的設計公司數目較少，門類五的僱員人數因此錄得極輕微的減幅。整體而言，設計公司的人力需求是平穩的。
- (iv) 門類四的僱員人數每年大幅增加 22.1%，主要反映其受惠於訪港遊客持續增加。與 2010 年相比，這個門類新增了 21 間公司，其中 6 間為大型公司，僱用 50 人以上。越來越多批發公司增聘人手，派駐電子產品零售公司的各間分店向顧客推銷產品和服務。

未來人力需求

7. 根據人力趨勢、電子業業務前景，以及僱主對未來人力需求的預測，本會相信未來數年，業界將繼續需要幹練的技師和技術員，以維持行業發展；但對操作工（製造）及技工的需求則有限。

8. 本會根據業內最新發展，估算各技能等級因退休、轉業或其他原因而流失的人手，並決定採用每年3%的正常流失率，推算技師、技術員及技工各技能等級的人手流失情況。

9. 本會採用「調節過濾法」估算技師及技術員兩個技能等級的人力需求。由於技工人數大幅下降，本會認為，這個技能等級的人力需求，僅是為填補流失而培訓的人數。電子業於2013至2015年間的額外人力需求撮錄於表B。

表 B: 電子業 2013 至 2015 年間每年人力需求

技能等級	平均每年需培訓人數	
	總數	幅度 (±10%)
技師	436	392 - 480
技術員	2 204	1 984 - 2 425
技工	188	169 - 207

建議

10. 電子業仍然是香港最大的本地出口商品行業，產品佔2012年本港出口總值的58%。本港經濟預期於2013年仍能保持升勢，增幅約為1.5%至3.5%。然而，人民幣不斷大幅升值、工資上漲、稅項增加，以及能源和原材料價格攀升等因素，均對電子業構成重大挑戰。珠江三角洲勞工短缺是另一項隱憂。因此，不少廠商計劃將生產線遷至成本較低的國家。另一方面，美國聯邦儲備局繼續維持短期利率於超低水平，以期降低失業率，同時又持續每月購買850億美元債券，希望改善經濟。至於歐洲，持續的歐債危機將進一步損害歐洲經濟。2011年3月，內地公布了「十二五」規劃，刺激內地消費需求及推動城市化發展，亦為本港企業帶來大量商機。《內地與香港關於建立更緊密經貿關係的安排》補充協議九於2012年6月29日簽署，共提供43項措施，放寬服務範圍及便利貿易投資。這些措施於2013年1月1日生效，將會讓本港和內地在金融、貿易及投資方面的交流合作更為便利，並加強雙方互認專業資格的安排。考慮到上述發展，本會持審慎樂觀看法，相信電子業會持續增長。因此，本會建議僱主採取以下措施，應付目前情況和未來挑戰：

- (i) 優化精簡工序，進行業務多元化，改善公司運作成效和效率；
- (ii) 開發更多高增值、具成本效益和環保的產品／服務，提升競爭力；
- (iii) 透過適當培訓，進一步提升員工（尤其是技術人員）的整體技術水平和能力，令機構更具實力和競爭力；
- (iv) 繼續以最具成本效益的方式開拓新業務，提高市場佔有率；及

- (v) 繼續維繫和加強與重要客戶的伙伴關係，並與潛在客戶建立合作關係。

11. 至於員工的技術和能力水平，本會認為除考慮公司的個別培訓需求外，附錄 9 所載的「僱員需要加強培訓的技能」，對僱主於籌辦培訓時甚具參考價值。在目前情況下，僱主宜加強培訓，以確保有足夠的幹練員工應對日後的挑戰和商機。此外，本會建議職業訓練局及其他培訓機構密切注視上述的電子業培訓需求，適時配合。

12. 本會將於 2014 年進行另一次電子業人力調查，檢討業內人力需求並更新有關數據。

第一章

緒 論

電子業及電訊業訓練委員會

1.1 電子業及電訊業訓練委員會是隸屬職業訓練局的法定委員會，由香港特別行政區政府委任，負責與電子業人力培訓有關事宜。本會委員乃由主要行業公會、專業學會、工會、訓練及教育機構，以及政府部門提名代表出任。本會委員名單及職權範圍分別載於附件A及B。

1.2 本會按職權規定，負責確定電子業的人力需求，並向職業訓練局提出建議，以發展專業教育及培訓設施，應付行業需要。

人力調查

1.3 本會於2012年4月為電子業進行人力調查，蒐集最新資料。是次調查在政府統計處協助下進行，實地調查後的跟進工作於同年11月完成，並於2013年1月完成數據處理。

1.4 是次調查蒐集到下列人力統計數據及資料：

- (i) 調查期間各主要職務的僱員人數；
- (ii) 現有空缺額；
- (iii) 受訓僱員人數；
- (iv) 僱主預測 2013 年 4 月時的僱員總數；
- (v) 僱員平均每月收入；及
- (vi) 僱主認為僱員宜有的教育程度、訓練方式及訓練期。

1.5 本會亦請僱主填報調查進行前12個月內，獲得晉升或派往香港以外地區工作超過6個月的技師、技術員及技工人數，以及僱員需要加強培訓的技能。

調查範圍

1.6 是次調查涵蓋 6 個門類，包括業內公司、相關院校學系及政府部門：

第一類：製造

下列產品的製造商：

- (a) 電腦及周邊設備(HSIC 262000, 281700, 952100)；
- (b) 影音器材(HSIC 264000, 953100)；
- (c) 通訊設備及電纜(HSIC 263000, 273100, 952200)；
- (d) 磁性及光學媒體、已儲錄資料媒體的複製(HSIC 182000, 268000)；
- (e) 電腦及電訊設備用電子零件與組件(HSIC 261100)；
- (f) 其他電子零件及組件(HSIC 261900)；
- (g) 電子遊戲用品及玩具(HSIC 324500)；
- (h) 工業用電子儀器及量度、檢驗、導航與控制用設備(HSIC 265100, 331300)。

第二類：貿易及服務

- (a) 防盜系統、閉路通訊系統及電訊設備安裝及保養公司(HSIC 432104, 432105, **432106**[^])
- (b) 下列產品的進出口貿易公司：
 - (i) 科學及專業儀器(HSIC 451631, 452631)*；
 - (ii) 電訊設備及零件(HSIC 451611, 452611)*；
 - (iii) 電器(HSIC 451452, 452452)*；
 - (iv) 電腦、電腦周邊設備及套裝軟件(HSIC 451601, 451602, 452601, 452602)*；
 - (v) 辦公室器材及設備(HSIC 451634, 452634)*；
 - (vi) 電子零件 (HSIC **451613, 452613**[^])*
- (c) 資料處理、寄存及相關活動公司(HSIC 620101, 620199, 620200, 620900, 631100)*；
- (d) (a)至(c)以外的其他電子工程服務公司。
(附錄 A)

第三類：電訊服務

提供下列服務的公司：

- (a) 電訊網絡營運服務(HSIC 611000)；
- (b) 其他雜項電訊活動(HSIC 619900)；
- (c) 互聯網接駁服務(HSIC 619100)；
- (d) 電台廣播，電影、錄像及電視節目編製與廣播活動(HSIC 591100, 601000, 602000)。

第四類：批發

下列批發公司：

- (a) 電訊設備及零件(HSIC 460611)；
- (b) 電器（不包括機械、辦公室及電訊設備及器材）(HSIC 460452)；
- (c) 電腦及電腦周邊設備(HSIC 460601, 460602)；及
- (d) 辦公室器材及設備（不包括電腦、傢具及固定裝置）(HSIC 460634)。

第五類：設計公司、相關院校學系及政府部門

- (a) 電子設計公司；
- (b) 相關院校學系；
- (b) 相關政府部門。

第六類：電子產品零售公司(5間大型公司)

附註：(1) HSIC — 香港標準行業分類

(2) *不包括僱用10名以下職員的機構，因這些機構技術人員不多。

(3) ^HSICs 432106, 451613 及 452613 為新增類別。

1.7 調查前，政府統計處錄得香港電子業 6 個門類約共有 7 364 間機構。鑑於資源有限，本會採用分層隨機抽樣方法，選出共 697 間機構為調查對象。調查所得資料其後以統計方法倍大，以反映業內的整體人力情況。

調查方法

1.8 實地調查進行前兩星期，本會將有關調查文件，包括調查表(附件D)、附註(附件E)及主要職務工作說明(附件F) 寄予選出的697間機構。本會亦透過本地報章，以及向有關行業組織宣傳，促請僱主合作。

1.9 實地調查期間，政府統計處派員到全部 697 間機構收回填妥的調查表，並於有需要時，協助僱主填寫表格。收回的調查表均經詳細審核，如有需要，會與填覆機構核對。

調查反應

1.10 697間選出的機構中，433間填覆調查表，38間拒絕作答，而其餘226間，則已搬遷、結業、未能聯絡，或已轉營他業。是次調查的實際填覆率為91.9%。

1.11 部分機構只提供粗略的資料，並無詳細列出調查進行時的僱員每月收入、受訓者數目和空缺數目，原因是業務繁忙和不願披露機構的機密資料。

調查報告

1.12 本會在跟進實地調查及處理數據後，於2013年2月編製統計報告，列載調查蒐集所得的重要人力數據。統計報告其後上載職業訓練局網站，以便公眾人士參考。

1.13 本報告書詳載是次調查結果、本會對業內的培訓需求預測，以及滿足這些需求的建議措施。報告書內，「僱員」、「從業員」及「人力」均指調查期間業內各主要職務的僱員總數，但不包括受訓者及學徒。「受訓者」指正在接受各種形式訓練的人士，包括已簽署學徒合約的註冊學徒。

第二章

調查結果摘要

僱員人數

2.1 是次調查顯示，2012年4月，本港電子業共僱用135 972人，其中58 631人受僱擔任電子工程及相關範疇的主要職務。下文各段只列載與業內主要職務僱員相關的人力統計數字。

各類機構各技能等級的僱員分布情況

2.2 電子業各類機構內各技能等級僱員的分布情況見表 2.1 及圖 2.1、2.2。

表 2.1： 各類機構各技能等級的僱員分布情況

門類	技能等級				總數 (佔僱員 總數百分 率)
	技師	技術員	技工	操作工	
1. 製造	956	2 432	551	2 113	6 052 (10.3%)
2. 貿易及服務	7 621	21 824	3 814	1 454	34 713 (59.2%)
3. 電訊服務	2 200	4 337	609	133	7 279 (12.4%)
4. 批發	293	3 202	274	108	3 877 (6.6%)
5. 設計公司、相關院校學系及政府部門	904	2 333	962	95	4 294 (7.3%)
6. 電子產品零售公司 (5間大型公司)	8	2 408	-	-	2 416 (4.2%)
總數 (佔僱員總數百分率)	11 982 20.4%	36 536 62.3%	6 210 10.6%	3 903 6.7%	58 631 100%

圖 2.1 : 各技能等級的僱員分布情況

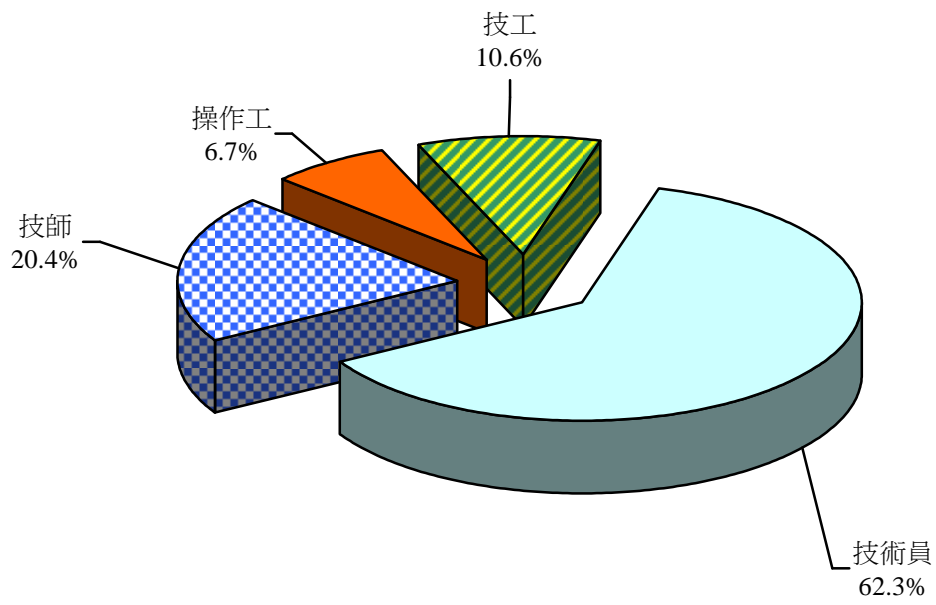
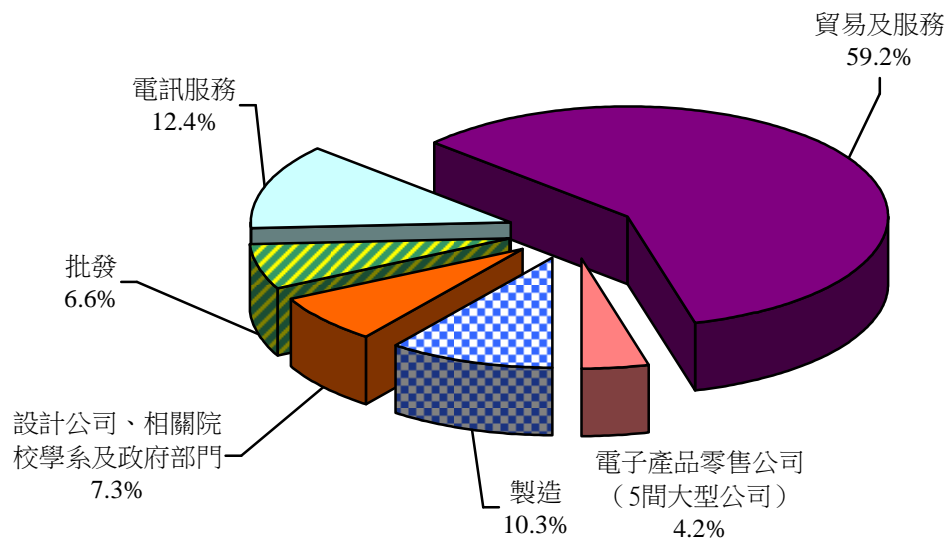


圖 2.2 : 各類機構的僱員分布情況



受訓者人數

2.3 調查期間，業內共有 799 名受訓者，按技能等級的分布情況見表 2.2：

表 2.2： 各技能等級的受訓者分布情況

技能等級	受訓者人數 (a)	僱員人數 (b)	百分率 $\frac{(a)}{(b)} \times 100\%$
技師	106	11 982	0.9%
技術員	334	36 536	0.9%
技工	359	6 210	5.8%
操作工	-	3 903	0%
總數	799	58 631	1.4%

調查期間空缺數目及 預測 2013 年 4 月時的人力

2.4 調查期間，業內共有 1 431 個空缺，佔業內僱員總數 2.4%。此外，僱主預測，至 2013 年 4 月時，業內將需要 60 338 名僱員，較 2012 年 4 月增加 1 707 人，增幅為 1.5%。

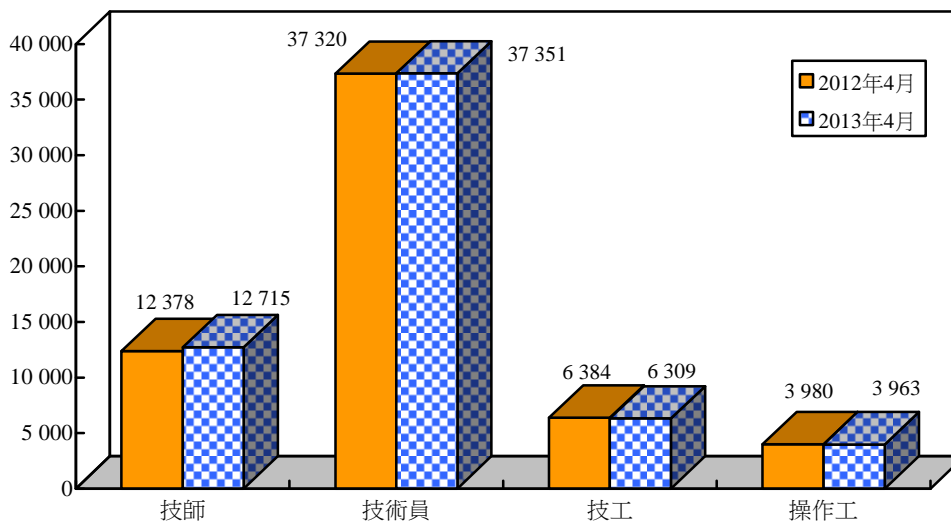
2.5 表 2.3 及圖 2.3 比較調查期間及僱主預測至 2013 年 4 月時的人力需求：

表 2.3： 2012 年 4 月與 2013 年 4 月的
人力需求比較

技能等級	調查期間（2012 年 4 月）			預測至 2013 年 4 月時的 僱員總數	預測人力 需求增減
	僱員人數	空缺數目	總人力需求		
技師	11 982	396	12 378	12 715	+2.7%
技術員	36 536	784	37 320	37 351	+0.1%
技工	6 210	174	6 384	6 309	-1.2%
操作工	3 903	77	3 980	3 963	-0.4%
總數	58 631	1 431	60 062	60 338	+0.5%

圖 2.3： 2012 年 4 月與 2013 年 4 月的
人力需求比較

人力需求



僱員每月總收入幅度

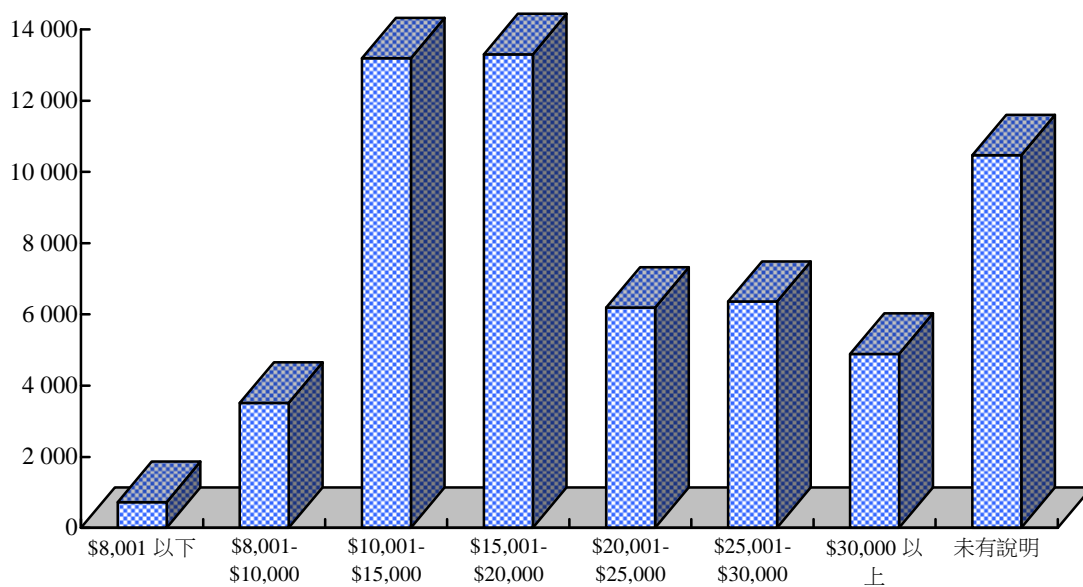
2.6 按每月總收入幅度劃分的僱員分布情況見表 2.4 及圖 2.4：

表 2.4： 根據每月總收入幅度的
僱員人數分布情況

技能等級	\$8,001 以下	\$8,001- \$10,000	\$10,001- \$15,000	\$15,001- \$20,000	\$20,001- \$25,000	\$25,001- \$30,000	\$30,000 以上	未有說明
技師	-	-	32	1 142	1 333	3 551	3 711	2 213
技術員	54	627	9 101	11 734	4 704	2 802	1 173	6 341
技工	64	1 024	3 899	427	-	-	-	796
操作工	603	1 866	160	-	154	-	-	1 120
總數	721	3 517	13 192	13 303	6 191	6 353	4 884	10 470

圖 2.4： 根據每月總收入幅度的僱員人數分布情況

僱員人數



僱員宜有的教育程度、訓練方式及訓練時間

2.7 大部分僱主認為技師、技術員及技工級僱員宜有的教育程度、訓練方式及訓練時間見表 2.5：

表 2.5： 僱員宜有的教育程度、訓練方式及訓練時間

技能等級	宜有教育程度	宜有訓練方式	宜有訓練時間
技師	大學學位／院士或同等學歷	在職訓練	3 年至 4 年
技術員	證書	在職訓練	2 年至 3 年
技工	技工證書	在職訓練	2 年至 3 年

內部晉升情況

2.8 調查前 12 個月內，本業共有 369 名僱員獲內部晉升至較高級職位。各技能等級的內部晉升僱員人數分布如下：

表 2.6： 內部晉升情況

內部晉升	獲晉升 僱員人數 (a)	晉升職級的 僱員總數 (b)	百分率 $\frac{(a)}{(b)} \times 100\%$
由技術員晉升至技師	133	11 982	1.1%
由技工晉升至技術員	235	36 536	0.6%
由其他職級晉升至技工	1	6 210	0.02%
總數	369	54 728	0.7%

派駐香港以外地區工作的僱員

2.9 據僱主填報，調查前 12 個月內，派駐香港以外地區工作超過 6 個月的僱員人數如下：

表 2.7： 派駐香港以外地區工作的僱員人數

技能等級	派駐香港以外 地區工作的 僱員人數 (a)	同一技能等級的 僱員總數 (b)	百分率 $\frac{(a)}{(b)} \times 100\%$
技師	633	11 982	5.3%
技術員	535	36 536	1.5%
技工	1	6 210	0.02%
總數	1 169	54 728	2.1%

僱員需要加強培訓的技能

2.10 僱主認為僱員最需要加強培訓的 3 項技能見表 2.8：

表 2.8： 按需要加強培訓的技能顯示
僱員分布情況

技能等級	僱員最需要加強培訓的 3 項技能			
	次序	編號	技能／知識／個人特質	僱員人數
技師	1.	103	項目管理	2 417
	2.	401	解決問題	2 366
	3.	107	領導能力	2 270
技術員	1.	404	溝通技巧	10 611
	2.	401	解決問題	9 499
	3.	411	客戶服務技巧	9 320
技工	1.	401	解決問題	1 871
	2.	404	溝通技巧	1 855
	3.	411	客戶服務技巧	1 842

統計表

2.11 電子業各類機構各主要職務的詳細人力統計數字分析載於附錄 1 至 7；按每月收入幅度劃分的僱員分布情況載於附錄 8；按僱員最需要加強培訓的技能顯示的分析則載於附錄 9。

第三章

結 論

3.1 本會已仔細審視調查結果，認為有關數據大致能反映調查期間業內的就業情況。

3.2 由於門類二（貿易及服務）於是次調查新增了 3 個 HSIC，業內擔任電子業務及相關範疇主要職務的僱員總數每年增加 6.1%，由 2010 年的 52 115 人增至 2012 年的 58 631 人。下文各段會按門類及技能等級詳細分析業界的人力變化。門類六（電子產品零售公司）只有 5 間公司的僱員接受調查，就這個門類的調查並非全面。因此，為更適當地直接比較各門類的人力情況，分析並不涵蓋門類二及六，但這兩個門類於 2010 及 2012 年的人力情況現載於表 3.2，以供參考。表 3.1 扼要列出另外 4 個門類各技能等級在 2012 及 2010 年的人力分布及變化。

表 3.1： 4 個門類各技能等級 2012 與 2010 年的人力情況比較
(括弧內為 2010 年數據)

技能等級	門類一 製造	門類三 電訊服務	門類四 批發	門類五 設計公 司、相關院 校學系及 政府部門	總數	按年 變化
技師	956 (998)	2 200 (2 212)	293 (314)	904 (874)	4 353 (4 398)	-0.5%
技術員	2 432 (2 283)	4 337 (4 441)	3 202 (1 663)	2 333 (2 363)	12 304 (10 750)	+7.0%
技工	551 (1 166)	609 (945)	274 (572)	962 (1 083)	2 396 (3 766)	-20.2%
操作工	2 113 (2 559)	133 (144)	108 (50)	95 (135)	2 449 (2 888)	-7.9%
總數	6 052 (7 006)	7 279 (7 742)	3 877 (2 599)	4 294 (4 455)	21 502 (21 802)	-0.7%
按年變化	-7.1%	-3.0%	+22.1%	-1.8%	-0.7%	

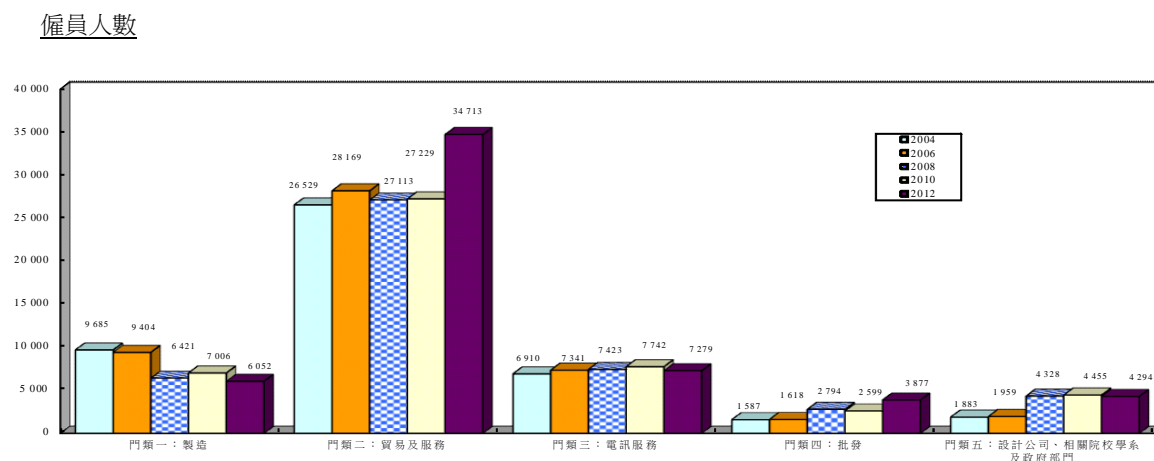
表 3.2： 門類二及門類六各技能等級
2012 與 2010 年的人力情況比較（供參考）

門類二：貿易及服務						
年份	技師	技術員	技工	操作工	總數	按年 變化
2012	7 621 (+1.29)	21 824 (18.9%)	3 814 (+0.6%)	1 454 (+56.6%)	34 713	+12.3%
2010	7 428	15 441	3 767	593	27 229	+0.2%

門類六：電子產品零售公司						
年份	技師	技術員	技工	操作工	總數	按年 變化
2012 (5 間 大型電子產 品零售公司)	8 (+6.9%)	2 408 (-8.6%)	-	-	2 416	-11.5%
2010 (9 間 大型電子產 品零售公司)	7	2 885	-	-	3 084	+3.5%

3.3 圖 3.1 顯示 2004 至 2012 年間電子業各門類的人力變化，並反映在人力調查範圍大幅修訂之後，行業在過去幾年的人力變化。

圖 3.1： 各門類 2004 至 2012 年間的人力變化



各門類的人力變化

3.4 根據表 2.1 所示，在 2012 年，門類二（貿易及服務）的人力（34 713 人）約佔電子業僱員總數（58 631 人）的 59.2%，而門類六（電子產品零售公司）則為 4.1%（2 416 人）。表 3.1 顯示，另外 4 個門類（門類一、三、四及五）僱用其餘 36.7% 人力（21 502 人），過去兩年僱員總數每年減少 0.7%，即 300 人。當中，門類一（製造）每年錄得 7.1% 的僱員人數跌幅，而門類三（電訊服務）及門類五（設計公司、相關院校學系及政府部門）分別每年微減人手 3.0% 和 1.8%。整體而言，4 個門類的僱員總數每年錄得 0.7% 極微跌幅。

3.5 各門類的人力變化原因如下：

- (i) 門類一的僱員人數按年減少，主要由於一些大型公司結束其製造業務；當中包括 22 間僱用 50 人或以上公司，而 2010 年則有 32 間。
- (ii) 雖然僅供參考，門類二因新增 3 個 HSIC 而每年大幅增加人手 12.3%。在過去兩年，工程服務業務似乎有所增長。此外，由於門類六的公司對於是次調查反應欠佳，接受調查的公司由 2010 年的 9 間減少至 2012 年的 5 間，這個門類因此錄得每年 11.5% 的急劇人力跌幅。
- (iii) 鑑於過去兩年市場對新電訊服務的持續需求，門類三的僱員人數本應有所增長，但實際卻錄得每年減少 3.0%，原因是有些電訊公司將其業務登記於門類二及四而非門類三之下。在過去兩年，大學工程院系及政府部門持續吸納人手，構成門類五

的主要人力需求。不過，由於是次調查納入的設計公司數目較少，門類五的僱員人數因而錄得極輕微的減幅。整體而言，設計公司的人力需求是平穩的。

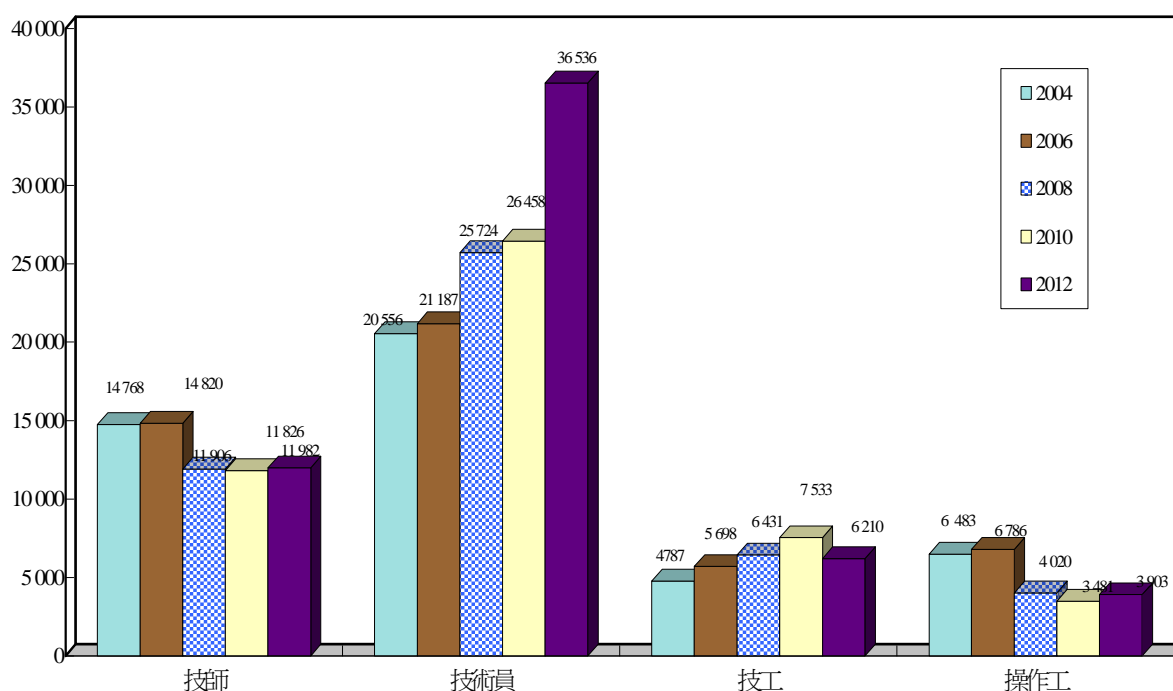
- (iv) 門類四的僱員人數每年大幅增加 22.1%，主要反映其受惠於訪港遊客持續增加。與 2010 年相比，這個門類新增了 21 間公司，其中 6 間為大型公司，僱用 50 人或以上。越來越多批發公司增聘人手，派駐電子產品零售公司的各間分店向顧客推銷產品和服務。

各技能等級的人力變化

3.6 各技能等級於 2004 至 2012 年間的人力變化見圖 3.2：

圖 3.2： 各技能等級 2004 至 2012 年間的人力變化

僱員人數



3.7 圖 3.2 顯示，技師人數每年微降 0.5%，而技工和操作工則分別顯著減少 20.2%及 7.9%。此外，技術員人數在 2010 至 2012 年間持續錄得每年 7.0%的升幅。雖然僅供參考，值得注意的是，門類二所有技能等級的人手每年均有增加，這也許是因為新增了 3 個 HSIC。另一方面，門類六因接受調查的公司較 2010 年少了 4 間而錄得每年甚大人力跌幅。上述各技能等級的人力變化原因如下：

- (i) 技師人數每年微減 0.5%，可能是由於過去兩年，技師和技術員的薪酬水平不斷調整，以適應電子業門類一的營商環境。此外，門類三有些公司將業務性質登記於門類二及四，因而一些技師、技術員和技工人數轉移至這兩個門類。門類五的技師人數有所增加，原因是業內對電子產品、集成電路及應用程式方面的設計人才續有需求，有關職務通常需要具備高技能的僱員擔任；
- (ii) 技術員人數每年增加 7.0%，原因與上文(i)所述的相同。此外，調查又顯示，門類四的推銷技術員人數每年大增 38.8%；及
- (iii) 技工人數每年劇減 20.2%，主要原因是 4 個門類普遍減少這類員工，尤以門類一及四為甚，減幅分別逾 30%。

業務前景

行業整體

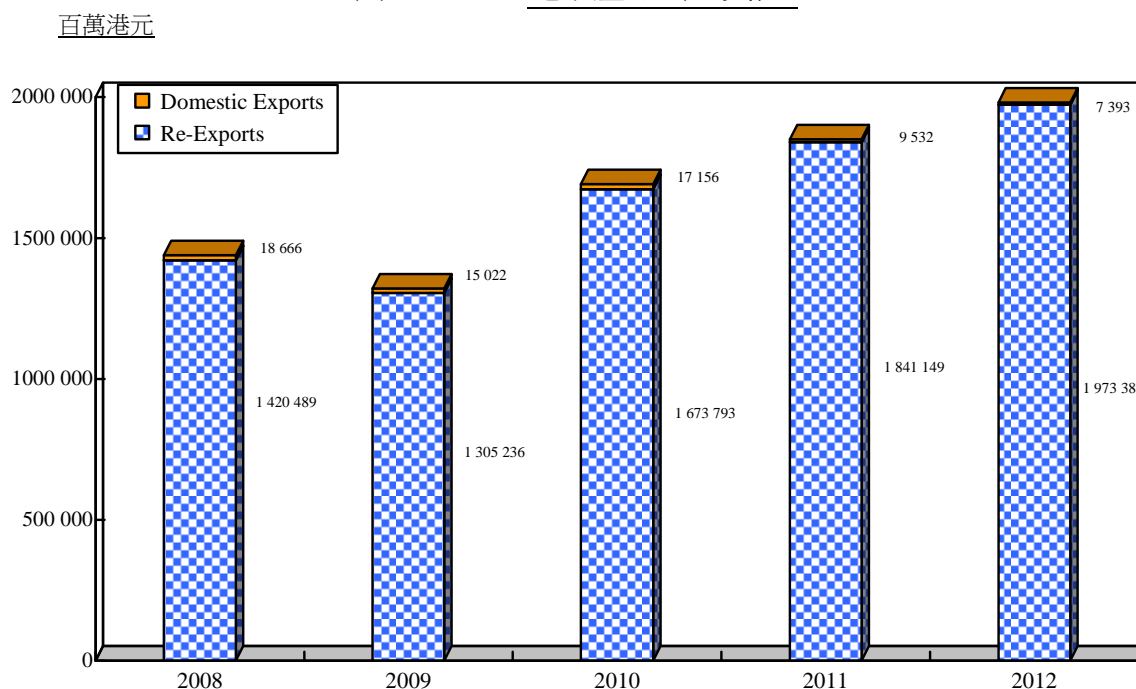
3.8 電子業仍是香港收益最多的本地出口商品行業，佔 2012 年本港出口總值的 58%。本港經濟預期於 2013 年保持 1.5% 至 3.5% 的增幅，主要因為內地持續擴充外發加工生產，以及美國、東盟及日本的消費者對各類電子產品及零部件的需求復甦。在 2012 年，電子產品的出口總值較上一年上升 7%，達 19,807.82 億港元。2008 至 2012 年間電子產品的出口貨值詳見表 3.3 及圖 3.3。

表 3.3: 電子產品出口貨值

電子產品	貨值（百萬港元）				
	2008	2009	2010	2011	2012
本地出口	18 666	15 022	17 156	9 532	7 393
轉口	1 420 489	1 305 236	1 673 793	1 841 149	1 973 389
總出口	1 439 155	1 320 258	1 690 949	1 850 680	1 980 782

資料來源：政府統計處《香港對外商品貿易統計》

圖 3.3： 電子產品出口貨值



3.9 自從 2010 年 5 月實施第七階段《內地與香港關於建立更緊密經貿關係的安排》(CEPA)以來，香港一直享受零關稅優惠；中央政府更於 2011 年 3 月公布「十二五」規劃，內地市場開放，進一步為香港企業提供不少商機。另一方面，《CEPA 補充協議九》於 2012 年 6 月 29 日簽署，共提供 43 項措施，放寬服務範圍及便利貿易投資。這些措施於 2013 年 1 月 1 日生效，將會讓本港和內地在金融、貿易及投資方面的交流合作更為便利，並加強雙方互認專業資格的安排。

3.10 香港電子業在過去兩年平穩增長。然而，人民幣不斷大幅升值、工資上漲、稅項增加，以及能源和原材料價格攀升等因素，均對電子業構成重大挑戰；珠江三角洲勞工短缺也是另一項隱憂。另一方面，內地實施「勞動合同法」和「加工貿易政策」，影響企業的主要營運成本。同時，社會對環保及安全規定的要求日高，令到中國及其他國家的環境法規不斷收緊，其中包括中國強制性產品認證 (CCC)、《廢棄電器及電子設備指令》(WEEE)、《限制電器及電子設備使用有害物質指令》(RoHS)，以及歐盟就化學品制訂的《化學品註冊、評估、授權和限制法規》(REACH)，均令門類一（製造）在過去數年承受巨大壓力，預期這種情況在未來幾年將會持續。

3.11 美國聯邦儲備局繼續維持短期利率於超低水平，以期降低失業率；同時又持續每月購買 850 億美元債券來刺激經濟。至於歐洲，持續的歐債危機將進一步損害歐洲經濟。這種情況在未來數年將對電子業產生一定影響。

3.12 由於內地經濟持續暢旺，且來港遊客不斷增加，本港經濟預期會繼續增長，業務性質相近的門類二（貿易及服務）、門類四（批發）及門類六（電子產品零售公司）會因而受惠。門類三（電訊服務）會繼續為公眾提供新服務，本會認為其業績將相當平穩。第四代流動通訊服務會日趨成熟，令用戶數量大幅增加。迅速發展的網上訂購業務、新興的智能數碼家居服務（連繫所有家庭電器及設備，以便集中控制，進一步減少排放二氧化碳）、網上學習課程及雲端運算（i-cloud）服務（供公眾或個人或兩者兼備），均是門類三的另一一些主要發展範疇。

3.13 香港仍會是零部件及高檔電子消費品的熱門採購中心。由於內地及其他國家的汽車產量不斷增加，汽車電池、電池充電器、音響器材及相關產品、汽車電子零件等，需求將會日增。發光二極管（LED）勝在輕巧纖細、耐用節能及容易調控，因而用途廣泛，例如用於道路標誌、告示板、照明設備和顯示器。另一類 LED—有源有機發光二極管（AMOLED），未來數年仍會普遍用於流動裝置及電視的顯示屏。

3.14 本會認為，門類五的設計公司會繼續開發產品，以配合業內最新科技發展，保持市場競爭力。另一方面，集成電路設計仍會是製造門類的重要業務。由於本港備有完善的保護知識產權法例和措施，加上業界的豐富設計經驗和昭著信譽，集成電路設計業務將蒸蒸日上。透過開發多元的應用程式(Apps)，並以應用程式商店提供增值服務，勢將成為這個門類的一個發展重點。

產品趨勢

3.15 蘋果公司的 iPad 自 2010 年 4 月推出以來，一直暢銷全球，掀動了個人電腦市場蓬勃發展，多間電子產品公司設計類似產品應市。各款具備大型多點觸控液晶顯示（LCD）螢幕，以及 Wi-Fi（無線上網及無線局域網）、3G 高速下載分組接入（HSDPA）及錄音功能的平板個人電腦亦逐漸流行起來。平板個人電腦可以作為電子書、電子雜誌、音樂、網頁內容、影片及遊戲的多媒體平台，也是網上教育及學習的必備硬件工具。在世界各地，平板個人電腦日益受到歡迎，反之，小型筆記簿型個人電腦（netbook）銷量不斷下降，估計不久便會被平板個人電腦取代。另一方面，功能強勁的筆記簿型電腦（notebook），例如具備高速無線連接、節能、USB 3.0 連接埠、多媒體、多點觸控 LED 螢幕、視像會議、全球定位系統（GPS）及雲端運算等功能，將會成為市場主流，未來幾年銷情看好。此外，一般電腦周邊設備，例如 USB3.0 隨身碟（flash drive）、網絡攝影機、揚聲器、掃描器，以及具備 Wi-Fi 通訊等新增功能的打印機等，需求仍然殷切，其中部分產品設計新穎，以廣銷路。

3.16 隨著寬頻上網服務迅速發展，「隨時隨地無線接駁」已經成為智能電話等流動上網裝置普遍具備的無線應用功能。除了一般的 MP3、錄音、收音機及高清晰度攝影等功能，智能電話還配備觸控螢幕、4G/LTE（長期演進技術）通訊、Wi-Fi 通訊、雲端數據儲存、多媒體播放、全球定位系統、視像會議及上網等特別功能。應用程式便覽服務推出後，大眾更加接受這類裝置，尤其是青少年，預期這類服務的需求很大。因此，不少電子產品公司已設計多款智能電話，配以不同的操作系統（Android、iOS、Symbian、Linux、Windows Phone 7/Windows Mobile、BlackBerry 及其他）與功能，以增加市場份額。功能及界面更先進、通訊及數據傳輸更快捷的智能電話，需求會持續增加。

3.17 至於電子消費品，尤其是視聽器材，可攜性及數碼匯流已蔚然成風。具備 Wi-Fi 通訊、動作感察器、觸控螢幕及三維效果等增強功能的數碼攝錄機和數碼相機尤其熱賣。另一方面，能夠高清晰度攝影的較廉價簡化版數碼單鏡反光相機將銷情走俏。隨著電子出版迅速發展，增設收音機、數碼錄音及 MP3 (MPEG-2 Audio Layer III) 等功能的電子書閱讀器未來數年會需求日增。另一重要市場是家庭／個人多媒體娛樂，藍光光碟 (Blu-ray DVD) 播放機及錄影機在未來數年將逐步取代 DVD 播放機及錄影機。此外，三維顯示技術及標準對於三維顯示器、裸眼三維顯示器、三維家庭影院、三維攝錄機及三維放大器等電子裝置影響甚大。

3.18 數碼電視廣播服務自 2007 年 12 月 31 日在香港啟播以來，覆蓋範圍已接近全港，甚受市民歡迎。具備 Wi-Fi 通訊及三維顯示等特別功能的大螢幕高清 (1 920 x 1 080 像素) 及超高清 (4K: 3 840 x 2 160 或 4 096 x 2 160 像素) 數碼 LCD 電視機預期在未來數年仍有殷切需求，且會成為家庭影院的必備裝置。配備大型 LED 背光 LCD 或 AMOLED 螢幕、內置三維效果以配合更多娛樂和日後商業活動用途、具上網及錄影功能的一般高清晰度數碼電視機，目前仍深受消費者歡迎。另一方面，新推出的流動電視於未來數年將會成為熱門的娛樂產品。本港的數碼聲音廣播服務已於 2012 年 12 月底啟播，數碼收音機料會成為市場的另一熱賣產品。

3.19 至於其他流行產品，例如採用資訊及通訊科技 (ICT) 連繫家居與醫院／診所以便醫生更有效率工作的健康護理電子產品及系統、長壽電池 (尤其用於環保汽車者)，以及節能的 LED 照明設備，需求料會增加。另一方面，生產商持續推出具備上網、三維顯示及多點觸控高清晰度螢幕等受歡迎功能的新穎電子遊戲機，電子玩具及遊戲仍是青少年和成年人渴求的產品。

3.20 鑑於環保生活哲學的興起，太陽能發電機、燃料電池和鋰離子電池是生產和儲存能源的必備裝置／部件。

未來人力需求

3.21 根據人力趨勢、電子業業務前景，以及僱主對未來人力需求的預測，本會相信未來數年，業界繼續需要幹練的技師和技術員，以維持行業發展；惟對技工及操作工 (製造門類) 的需求則有限。

3.22 本會根據業內最新發展，估算各技能等級因退休、轉業或其他原因而流失的人手，並決定採用每年 3% 的正常流失率，推算技師、技術員及技工各技能等級的人手流失情況。

3.23 本會採用「調節過濾法」，估算技師及技術員兩個技能等級的人力需求。由於技工人數大幅下降，本會認為，這個技能等級的人力需求，僅是為填補流失而培訓的人數。電子業在 2013 至 2015 年間的額外人力需求於表 3.4 扼要列出。按主要職務劃分的培訓需求見附錄 10。

表 3.4: 電子業 2013 至 2015 年間每年人力需求

技能等級	平均每年需培訓人數	
	總數	幅度 (±10%)
技師	436	392 - 480
技術員	2 204	1 984 - 2 425
技工	188	169 - 207

3.24 本會將於 2014 年進行另一次電子業人力調查，檢討業內人力需求並更新有關數據。

第四章

建 議

4.1 電子業仍然是香港最大的本地出口商品行業，產品佔 2012 年本港出口總值的 58%。本港經濟預期於 2013 年仍能保持升勢，增幅約為 1.5% 至 3.5%。然而，人民幣不斷大幅升值、工資上漲、稅項增加，以及能源和原材料價格攀升等因素，均對電子業構成重大挑戰。珠江三角洲勞工短缺是另一項隱憂。因此，不少廠商計劃將生產線遷至成本較低的國家。另一方面，美國聯邦儲備局繼續維持短期利率於超低水平，以期降低失業率，同時又持續每月購買 850 億美元債券來刺激經濟。至於歐洲，持續的歐債危機將進一步損害歐洲經濟。2011 年 3 月，內地公布了「十二五」規劃，刺激內地消費需求及推動城市化發展，亦為本港企業帶來大量商機。《CEPA 補充協議九》於 2012 年 6 月 29 日簽署，共提供 43 項措施，放寬服務範圍及便利貿易投資。這些措施於 2013 年 1 月 1 日生效，將會讓本港和內地在金融、貿易及投資方面的交流合作更為便利，並加強雙方互認專業資格的安排。考慮到上述發展，本會持審慎樂觀看法，相信電子業會持續增長。因此，本會建議僱主採取以下措施，應付目前情況和未來挑戰：

- (i) 優化精簡工序，進行業務多元化，改善公司運作成效和效率；
- (ii) 開發更多高增值、具成本效益和環保的產品／服務，提升競爭力；
- (iii) 透過適當培訓，進一步提升員工（尤其是技術人員）的整體技術水平和能力，令機構更具實力和競爭力；
- (iv) 繼續以最具成本效益的方式開拓新業務，提高市場佔有率；及
- (v) 繼續維繫和加強與重要客戶的伙伴關係，並與潛在客戶建立合作關係。

4.2 至於員工的技術和能力水平，本會認為除考慮公司的個別培訓需求外，附錄 9 所載的「僱員需要加強培訓的技能」，對僱主於籌辦培訓時甚具參考價值。在目前情況下，僱主宜加強培訓，以確保有足夠的幹練員工應對日後的挑戰和商機。此外，本會建議職業訓練局及其他培訓機構密切注視上述的電子業培訓需求，適時配合。

每年受訓人數

4.3 在調查期間，技師、技術員及技工級的受訓者分別只有 106 人、334 人和 359 人。由於培訓技師通常需時 2 至 4 年，培訓技術員或技工則需要 3 至 4 年，目前僱主提供的培訓，明顯未能滿足行業需求。

4.4 本會建議，整個行業於 2013 至 2014 年以第 3.23 段所述的規模推行培訓計劃。各主要職務的培訓需求載於附錄 10。僱主為機構策劃人力時，應留意平均每年需受訓的人數，按現有的人手計算，分別約佔現職技師、技術員及技工總數的 3.6%、6.0% 和 3.0%。

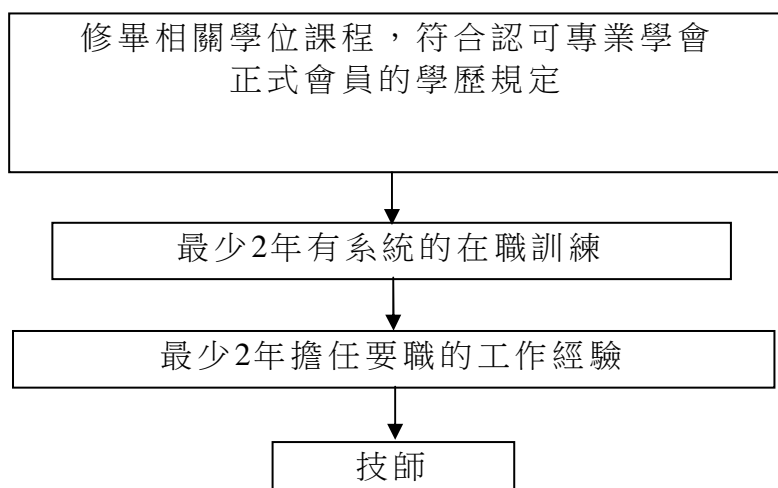
4.5 下文概述技師、技術員及技工的建議培訓途徑。

技師訓練

4.6 技師須具備相當於專業學會正式會員所需的學歷和經驗，且能夠分析和解決各種技術問題。此外，技師亦須負責發展及應用工程原理，具創見和判斷力，緊貼行業的科技發展，採用最新技術，並督導和培訓下屬。

4.7 在改善管理和革新科技方面，技師肩負重任。本會建議循以下途徑訓練技師：

圖 4.1： 技師訓練



4.8 大學教育資助委員會（下稱「教資會」）資助的多所本地院校，均有開辦各類電子工程及相關學科的學位課程。下表列出這些全日制工程科學位課程在2013/14及2014/15年度的預計畢業生人數：

表 4.1： 預計教資會院校畢業生人數

全日制學位課程	預計畢業生人數	
	2013/14	2014/15
電子工程	361	334
電腦工程	172	201
資訊工程	96	100
電子及通訊工程	101	97
電子及資訊工程	84	102
互聯網及多媒體科技	36	31
系統工程及工程管理	95	87
總數	945	952

4.9 預測未來三年，業界每年約需招聘 328 至 402 名有關的技師級人員（電子工程師、製造／品質保證工程師及系統分析員）。電子工程及相關學科的畢業生人數應可滿足預測需求。這些畢業生普遍亦會在機電工程、資訊科技及製造等其他行業，從事電子工程及相關工作。

工科畢業生訓練計劃(EGTS)

4.10 為了讓工程科畢業生在本港行業更有系統地實習，職業訓練局轄下技師訓練委員會正推行一項資助訓練計劃－工科畢業生訓練計劃（Engineering Graduate Training Scheme, EGTS），向工科畢業生提供 18 個月的實習訓練，程度符合香港工程師學會正式會員的資格要求。訓練津貼會經由僱主發放，作為受訓者部分薪金，而實習進度則由技師訓練委員會負責監察。

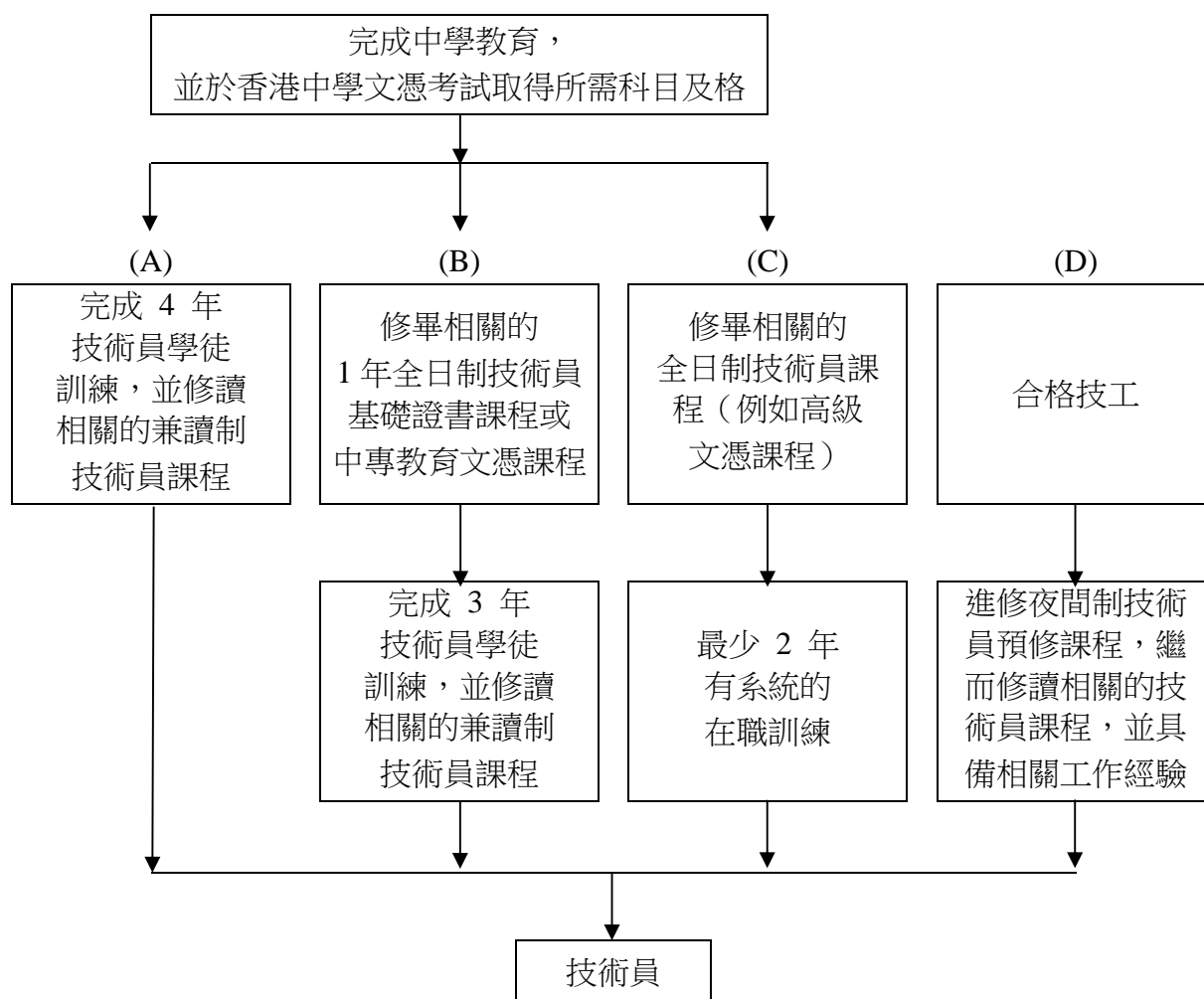
新科技培訓計劃（NTTS）

4.11 自 1992 年起，職業訓練局一直開辦「新科技培訓計劃」（New Technology Training Scheme, NTTS），為有意讓員工接受新科技培訓以促進業務發展的本地公司提供協助。就是項計劃而言，「新科技」指未在香港廣泛應用的科技，而吸納和應用這些科技有助本港工商業發展。本地僱主如欲引進新科技作工商業用途，可申請計劃的訓練津貼。本會鼓勵僱主充分利用是項計劃。

技術員訓練

4.12 技術員乃指職級介乎技師與技工之間的從業員，以其學歷、訓練和實務經驗，應能運用已確立的方法來解決技術問題；此外，一般能在技師督導下，肩負技術責任。技術員的訓練途徑見圖 4.2。

圖 4.2: 技術員訓練



4.13 香港理工大學及職業訓練局轄下香港專業教育學院（IVE）開辦多項電子工程及相關學科的高級文憑課程。下表列出兩間院校此等全日制高級文憑課程的預計畢業生人數：

表 4.2: 2013/14 及 2014/15 年度高級文憑課程畢業生預計人數

全日制高級文憑課程	預計畢業生人數	
	2013/14	2014/15
電子及通訊工程	176	127
電子及資訊工程	50	49
數碼電視及動態影像工程	25	0
電腦工程	96	96
電腦及資訊工程	88	51
多媒體設計及科技	126	102
總數	561	425

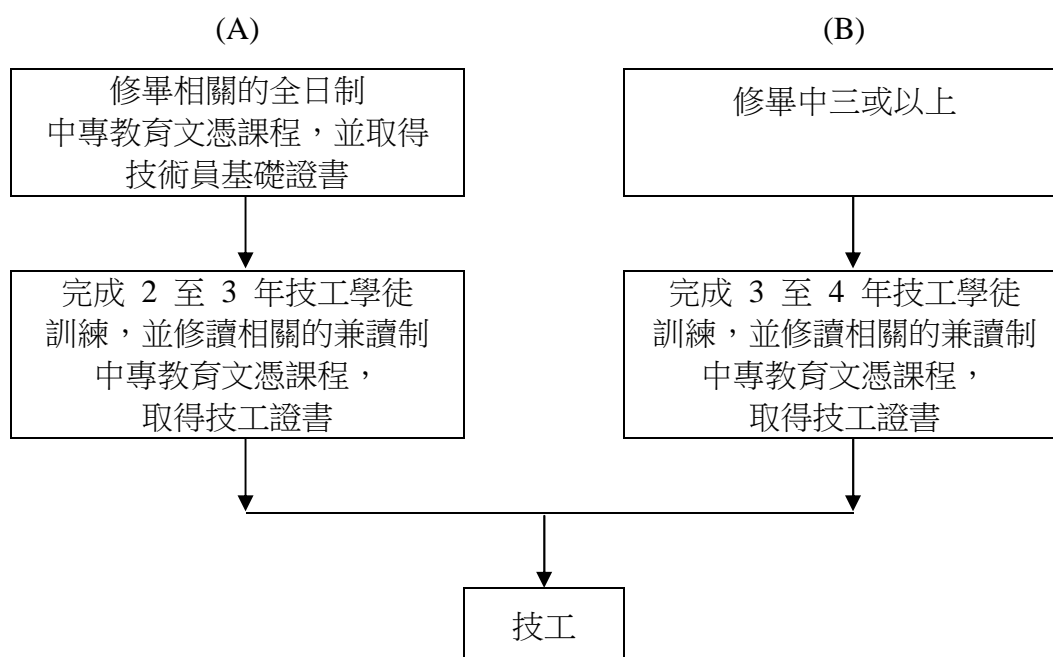
4.14 卓越培訓發展中心（電子業）與職業訓練局轄下青年學院合辦一年全日制中專教育文憑課程（數碼電子科技），供中六離校生修讀。由 2013/14 年度起，估計每年約有 75 名畢業生。

4.15 根據預測，電子業在 2013/14 年度需招聘 1 775 至 2 168 名技術員級人員（電子技術員、推銷技術員、繪圖員、製造／品質保證技術員、程序編製員及網站開發員／設計員），但高級文憑課程及中專教育文憑課程的畢業生合共約為 630 人，少於預測的人力需求。不過，部分技術員職位可透過以學徒訓練計劃培訓中學離校生，以及內部晉升具經驗的技工來填補。調查期間，業內有 334 名見習技術員，而調查之前的 12 個月內，共有 235 名僱員晉升為技術員。

技工訓練

4.16 技工具熟練技術，能夠在極少指導和監督下，將多方面的技能應用到工作上。技工不但要有實際技能，還須具備相關的理論知識，才能適應科技發展。完善的技工學徒訓練會兼備這兩方面的培訓。訓練技工的一般途徑見圖 4.3：

圖 4.3: 技工訓練



4.17 本會推薦途徑(A)，因為訓練期較短，而且學徒已受過適當的基本訓練，於學徒訓練開始時即可執行工作。

4.18 卓越培訓發展中心（電子業）採取多階進出的修讀模式，與職業訓練局轄下青年學院合辦中專教育文憑課程（數碼電子科技），供中三離校生修讀。課程擬有約 200 名學員於受訓後獲頒技工證書，可以擔任電子業相關職務。電子業於 2013/14 年需招聘 130 至 159 名技工（電纜接駁技工／駁線技工及電子技工）。由於畢業生可能選擇繼續進修而非投身本業工作，卓越培訓發展中心（電子業）提供的技工人數不定。不過，調查期間，電子業有 359 名見習技工；而調查之前的 12 個月內，共有 1 名僱員晉升為技工。因此，可供僱用的技工將有 360 名，大於需求。一般而言，畢業生亦可投身如機電工程、屋宇裝備工程及製造等其他行業，擔任電子技工及相關職務。

教育及培訓機構

4.19 職業訓練局轄下香港專業教育學院及卓越培訓發展中心（電子業），以及幾所大專院校，均有為電子業人員提供多種職前及在職培訓課程。本會促請業內僱主聘請這些課程的畢業生擔任學徒或見習員，並資助僱員修讀有關技能提升課程，以充分利用這些機構的培訓設施。

香港科技園公司

4.20 香港特區政府於 2001 年成立香港科技園公司（香港科技園），透過協作形式為以科技為主業的公司及有關活動提供一站式基礎支援服務，包括推出培育計劃協助剛起步的科技公司、在香港科技園內為應用研發活動提供場所及服務、於創新中心設置匯聚設計行業的辦公場地，以及在各個工業邨內提供生產業務所需的用地和廠房。總括而言，香港科技園備有 20 幢先進的實驗室配套大樓，辦公空間面積達 220,000 平方米，提供良好的研發環境及支援服務，以便 300 間入駐公司互相合作和發揮協同效應。這些公司分屬五個科技領域－集成電路及電子、精密工程、生物科技、綠色科技，以及資訊科技及電訊。園內的先進設施及服務包括知識產權（IP）安全使用虛擬平台－電子設計自動化（EDA）及半導體知識產權（IP）服務、半導體知識產權（IP）、多項目晶圓（MPW）及小批量生產（LVP）服務、集成電路測試開發及實驗生產服務、可靠性測試服務、集成電路失效分析服務、物料分析服務、固態照明測試服務、無線通訊測試中心、太陽能電池板測試服務，以及生物科技支援中心。電子業僱主應善用香港科技園提供的設施和服務，尤其是集成電路設計方面。

職業訓練局的培訓服務

4.21 職業訓練局免費協助僱主籌辦法定的學徒訓練計劃，藉此有效地培訓技術員和技工，切合行業所需。本會建議，僱主可就設立訓練計劃及招聘學徒／見習員事宜聯絡該局，尋求協助。

- This is a blank page -

- 空白頁 -

Appendices and Annexes

附錄及附件

- This is a blank page -

- 空白頁 -

MANPOWER STATISTICS OF THE ELECTRONICS INDUSTRY

電子業人力統計數字

Sector 1: Manufacturing (門類一：製造)

Job Title 職稱	Number of Workers Employed 僱員人數	Number of Trainees 受訓者人數	Number of Vacancies at Date of Survey 調查期間 空缺數目	Forecast of Total Workers by April 2013 預測至 2013 年 4 月時的僱員總數
TECHNOLOGIST LEVEL 技師級				
Electronics Engineer 電子工程師	455	9	21	474
Electrical Engineer 電機工程師	2	-	-	2
Mechanical Engineer 機械工程師	107	9	7	87
Manufacturing/Quality Assurance Engineer 製造/品質保證工程師	333	-	27	358
Chemical Engineer 化學工程師	15	-	-	15
Product/Graphic Designer 產品/平面設計員	16	-	2	18
System Analyst 系統分析員	28	-	-	24
Sub-total 小計	956	18	57	978
TECHNICIAN LEVEL 技術員級				
Electronics Technician 電子技術員	1315	9	36	1 330
Mechanical Technician 機械技術員	219	-	4	214
Draughtsman 繪圖員	6	-	-	6
Manufacturing/Quality Assurance Technician 製造/品質保證技術員	273	-	3	276
Supervisor/Foreman/Leader 監督/管工/組長	292	-	-	292
Programmer 程序編製員	19	-	-	19
Web Developer/Designer 網站開發員/設計員	-	-	-	-
Sales Technician 推銷技術員	308	-	-	308
Sub-total 小計	2 432	9	43	2 445
CRAFTSMAN LEVEL 技工級				
Cable Jointer/Wireman 電纜接駁技工/駁線技工	2	-	-	2
Electronics Craftsman 電子技工	405	51	9	459
Electrician 電氣技工	58	-	-	58
Mechanic 技工	86	-	-	86
Sub-total 小計	551	51	9	605
OPERATIVE LEVEL 操作工級				
Operator 生產線操作工	2 113	-	29	2 138
Sub-total 小計	2 113	-	29	2 138
GRAND TOTAL 總計	6 052	78	138	6 166

MANPOWER STATISTICS OF THE ELECTRONICS INDUSTRY

電子業人力統計數字

Sector 2: Trading and Services (門類二：貿易及服務)

Job Title 職稱	Number of Workers Employed 僱員人數	Number of Trainees 受訓者人數	Number of Vacancies at Date of Survey 調查期間 空缺數目	Forecast of Total Workers by April 2013 預測至 2013 年 4 月時的僱員總數
TECHNOLOGIST LEVEL 技師級				
Electronics Engineer 電子工程師	4 383	21	95	4 475
Electrical Engineer 電機工程師	448	10	4	452
Mechanical Engineer 機械工程師	746	25	19	765
Manufacturing/Quality Assurance Engineer 製造/品質保證工程師	411	5	13	424
Chemical Engineer 化學工程師	24	-	-	24
Product/Graphic Designer 產品/平面設計員	265	-	1	266
System Analyst 系統分析員	1 344	-	22	1 362
Sub-total 小計	7 621	61	154	7 768
TECHNICIAN LEVEL 技術員級				
Electronics Technician 電子技術員	6 680	115	276	6 960
Mechanical Technician 機械技術員	885	99	36	931
Draughtsman 繪圖員	183	-	4	185
Manufacturing/Quality Assurance Technician 製造/品質保證技術員	407	-	-	407
Supervisor/Foreman/Leader 監督/管工/組長	1 092	-	16	1 108
Programmer 程序編製員	3 487	-	26	3 516
Web Developer/Designer 網站開發員/設計員	1 127	-	65	1 192
Sales Technician 推銷技術員	7 963	-	135	8 092
Sub-total 小計	21 824	214	558	22 391
CRAFTSMAN LEVEL 技工級				
Cable Jointer/Wireman 電纜接駁技工/駁線技工	651	-	22	669
Electronics Craftsman 電子技工	2 842	148	108	2 954
Electrician 電氣技工	175	-	10	175
Mechanic 技工	146	4	-	150
Sub-total 小計	3 814	152	140	3 948
OPERATIVE LEVEL 操作工級				
Operator 生產線操作工	1 454	-	42	1 496
Sub-total 小計	1 454	-	42	1 496
GRAND TOTAL 總計	34 713	427	894	35 603

MANPOWER STATISTICS OF THE ELECTRONICS INDUSTRY

電子業人力統計數字

Sector 3: Telecommunications Services (門類三：電訊服務)

Job Title 職稱	Number of Workers Employed 僱員人數	Number of Trainees 受訓者人數	Number of Vacancies at Date of Survey 調查期間 空缺數目	Forecast of Total Workers by April 2013 預測至 2013 年 4 月時的僱員總數
TECHNOLOGIST LEVEL 技師級				
Electronics Engineer 電子工程師	1 951	-	115	2 219
Electrical Engineer 電機工程師	42	-	-	44
Mechanical Engineer 機械工程師	8	-	2	10
Manufacturing/Quality Assurance Engineer 製造/品質保證工程師	23	-	-	23
Chemical Engineer 化學工程師	-	-	-	-
Product/Graphic Designer 產品/平面設計員	24	-	-	140
System Analyst 系統分析員	152	-	-	143
Sub-total 小計	2 200	-	117	2 579
TECHNICIAN LEVEL 技術員級				
Electronics Technician 電子技術員	2 236	-	11	2 257
Mechanical Technician 機械技術員	11	-	-	11
Draughtsman 繪圖員	43	-	1	44
Manufacturing/Quality Assurance Technician 製造/品質保證技術員	3	-	-	3
Supervisor/Foreman/Leader 監督/管工/組長	168	-	-	121
Programmer 程序編製員	246	-	-	221
Web Developer/Designer 網站開發員/設計員	636	-	10	646
Sales Technician 推銷技術員	994	-	-	994
Sub-total 小計	4 337	-	22	4 297
CRAFTSMAN LEVEL 技工級				
Cable Jointer/Wireman 電纜接駁技工/駁線技工	20	-	-	20
Electronics Craftsman 電子技工	402	-	2	261
Electrician 電氣技工	186	-	-	186
Mechanic 技工	1	-	-	1
Sub-total 小計	609	-	2	468
OPERATIVE LEVEL 操作工級				
Operator 生產線操作工	133	-	6	133
Sub-total 小計	133	-	6	133
GRAND TOTAL 總計	7 279	-	147	7 477

MANPOWER STATISTICS OF THE ELECTRONICS INDUSTRY

電子業人力統計數字

Sector 4: Wholesale (門類四：批發)

Job Title 職稱	Number of Workers Employed 僱員人數	Number of Trainees 受訓者人數	Number of Vacancies at Date of Survey 調查期間 空缺數目	Forecast of Total Workers by April 2013 預測至 2013 年 4 月時的僱員總數
TECHNOLOGIST LEVEL 技師級				
Electronics Engineer 電子工程師	227	-	42	369
Electrical Engineer 電機工程師	-	-	-	-
Mechanical Engineer 機械工程師	-	-	-	-
Manufacturing/Quality Assurance Engineer 製造/品質保證工程師	20	-	-	20
Chemical Engineer 化學工程師	-	-	-	-
Product/Graphic Designer 產品/平面設計員	10	-	-	10
System Analyst 系統分析員	36	-	-	36
Sub-total 小計	293	-	42	435
TECHNICIAN LEVEL 技術員級				
Electronics Technician 電子技術員	872	2	28	902
Mechanical Technician 機械技術員	6	-	-	6
Draughtsman 繪圖員	-	-	-	-
Manufacturing/Quality Assurance Technician 製造/品質保證技術員	-	-	-	-
Supervisor/Foreman/Leader 監督/管工/組長	1	-	-	1
Programmer 程序編製員	98	-	11	109
Web Developer/Designer 網站開發員/設計員	26	-	-	26
Sales Technician 推銷技術員	2 199	-	86	2 285
Sub-total 小計	3 202	2	125	3 329
CRAFTSMAN LEVEL 技工級				
Cable Jinter/Wireman 電纜接駁技工/駁線技工	25	-	-	25
Electronics Craftsman 電子技工	235	-	22	257
Electrician 電氣技工	14	-	-	14
Mechanic 技工	-	-	-	-
Sub-total 小計	274	-	22	296
OPERATIVE LEVEL 操作工級				
Operator 生產線操作工	108	-	-	108
Sub-total 小計	108	-	-	108
GRAND TOTAL 總計	3 877	2	189	4 168

MANPOWER STATISTICS OF THE ELECTRONICS INDUSTRY

電子業人力統計數字

Sector 5: Design Houses, Relevant Departments in Universities and Government

(門類五：設計公司、相關院校學系及政府部門)

Job Title 職稱	Number of Workers Employed 僱員人數	Number of Trainees 受訓者人數	Number of Vacancies at Date of Survey 調查期間 空缺數目	Forecast of Total Workers by April 2013 預測至 2013 年 4 月時的僱員總數
TECHNOLOGIST LEVEL 技師級				
Electronics Engineer 電子工程師	564	5	22	592
Electrical Engineer 電機工程師	229	19	-	240
Mechanical Engineer 機械工程師	13	-	-	13
Manufacturing/Quality Assurance Engineer 製造/品質保證工程師	28	-	3	31
Chemical Engineer 化學工程師	12	-	-	12
Product/Graphic Designer 產品/平面設計員	-	-	1	1
System Analyst 系統分析員	58	3	-	58
Sub-total 小計	904	27	26	947
TECHNICIAN LEVEL 技術員級				
Electronics Technician 電子技術員	972	18	25	1 024
Mechanical Technician 機械技術員	176	87	-	196
Draughtsman 繪圖員	7	-	-	7
Manufacturing/Quality Assurance Technician 製造/品質保證技術員	20	-	2	22
Supervisor/Foreman/Leader 監督/管工/組長	1 016	-	-	1 073
Programmer 程序編製員	142	-	3	145
Web Developer/Designer 網站開發員/設計員	-	-	-	-
Sales Technician 推銷技術員	-	-	-	-
Sub-total 小計	2 333	105	30	2 467
CRAFTSMAN LEVEL 技工級				
Cable Joiner/Wireman 電纜接駁技工/駁線技工	-	-	-	-
Electronics Craftsman 電子技工	196	-	-	191
Electrician 電氣技工	353	78	-	368
Mechanic 技工	413	78	1	433
Sub-total 小計	962	156	1	992
OPERATIVE LEVEL 操作工級				
Operator 生產線操作工	95	-	-	88
Sub-total 小計	95	-	-	88
GRAND TOTAL 總計	4 294	288	57	4 494

MANPOWER STATISTICS OF THE ELECTRONICS INDUSTRY

電子業人力統計數字

Sector 6: Retail Shops for Electronics Products (5 large shops)

(門類六：電子產品零售公司(5間大型公司))

Job Title 職稱	Number of Workers Employed 僱員人數	Number of Trainees 受訓者人數	Number of Vacancies at Date of Survey 調查期間 空缺數目	Forecast of Total Workers by April 2013 預測至 2013 年 4 月時的僱員總數
TECHNOLOGIST LEVEL 技師級				
Electronics Engineer 電子工程師	6	-	-	6
Electrical Engineer 電機工程師	-	-	-	-
Mechanical Engineer 機械工程師	-	-	-	-
Manufacturing/Quality Assurance Engineer 製造/品質保證工程師	-	-	-	-
Chemical Engineer 化學工程師	-	-	-	-
Product/Graphic Designer 產品/平面設計員	-	-	-	-
System Analyst 系統分析員	2	-	-	2
Sub-total 小計	8	-	-	8
TECHNICIAN LEVEL 技術員級				
Electronics Technician 電子技術員	52	4	-	56
Mechanical Technician 機械技術員	-	-	-	-
Draughtsman 繪圖員	-	-	-	-
Manufacturing/Quality Assurance Technician 製造/品質保證技術員	-	-	-	-
Supervisor/Foreman/Leader 監督/管工/組長	-	-	-	-
Programmer 程序編製員	-	-	-	-
Web Developer/Designer 網站開發員/設計員	4	-	-	4
Sales Technician 推銷技術員	2 352	-	6	2 362
Sub-total 小計	2 408	4	6	2 422
CRAFTSMAN LEVEL 技工級				
Cable Jointer/Wireman 電纜接駁技工/駁線技工	-	-	-	-
Electronics Craftsman 電子技工	-	-	-	-
Electrician 電氣技工	-	-	-	-
Mechanic 技工	-	-	-	-
Sub-total 小計	-	-	-	-
OPERATIVE LEVEL 操作工級				
Operator 生產線操作工	-	-	-	-
Sub-total 小計	-	-	-	-
GRAND TOTAL 總計	2 416	4	6	2 430

MANPOWER STATISTICS OF THE ELECTRONICS INDUSTRY (ALL SECTORS)

電子業人力統計數字 (各門類)

Job Title 職稱	Number of Workers Employed 僱員人數	Number of Trainees 受訓者人數	Number of Vacancies at Date of Survey 調查期間 空缺數目	Forecast of Total Workers by April 2013 預測至 2013 年 4 月時的僱員總數
TECHNOLOGIST LEVEL 技師級				
Electronics Engineer 電子工程師	7 586	35	295	8 135
Electrical Engineer 電機工程師	721	29	4	738
Mechanical Engineer 機械工程師	874	34	28	875
Manufacturing/Quality Assurance Engineer 製造/品質保證工程師	815	5	43	856
Chemical Engineer 化學工程師	51	-	-	51
Product/Graphic Designer 產品/平面設計員	315	-	4	435
System Analyst 系統分析員	1 620	3	22	1 625
Sub-total 小計	11 982	106	396	12 715
TECHNICIAN LEVEL 技術員級				
Electronics Technician 電子技術員	12 127	148	376	12 529
Mechanical Technician 機械技術員	1 297	186	40	1 358
Draughtsman 繪圖員	239	-	5	242
Manufacturing/Quality Assurance Technician 製造/品質保證技術員	703	-	5	708
Supervisor/Foreman/Leader 監督/管工/組長	2 569	-	16	2 595
Programmer 程序編製員	3 992	-	40	4 010
Web Developer/Designer 網站開發員/設計員	1 793	-	75	1 868
Sales Technician 推銷技術員	13 816	-	227	14 041
Sub-total 小計	36 536	334	784	37 351
CRAFTSMAN LEVEL 技工級				
Cable Joiner/Wireman 電纜接駁技工/駁線技工	698	-	22	716
Electronics Craftsman 電子技工	4 080	199	141	4 122
Electrician 電氣技工	786	78	10	801
Mechanic 技工	646	82	1	670
Sub-total 小計	6 210	359	174	6 309
OPERATIVE LEVEL 操作工級				
Operator 生產線操作工	3 903	-	77	3 963
Sub-total 小計	3 903	-	77	3 963
GRAND TOTAL 總計	58 631	799	1 431	60 338

DISTRIBUTION OF EMPLOYEES BY MONTHLY INCOME RANGE (ALL SECTORS)

根據每月總收入幅度的僱員人數分布情況（各門類）

Job Title 職稱	Unspecified 未有說明	Below \$8,001 以下	\$8,001 - \$10,000	\$10,001 - \$15,000	\$15,001 - \$20,000	\$20,001 - \$25,000	\$25,001 - \$30,000	Over \$30,000 以上
TECHNOLOGIST LEVEL 技師級								
Electronics Engineer 電子工程師	1 385	-	-	11	697	848	2 634	2 011
Electrical Engineer 電機工程師	14	-	-	-	8	122	18	559
Mechanical Engineer 機械工程師	85	-	-	-	59	242	50	438
Manufacturing/Quality Assurance Engineer 製造／品質保證工程師	213	-	-	7	164	40	141	250
Chemical Engineer 化學工程師	11	-	-	-	4	6	-	30
Product/Graphic Designer 產品／平面設計員	71	-	-	14	126	30	-	74
System Analyst 系統分析員	434	-	-	-	84	45	708	349
Sub-total 小計	2 213	-	-	32	1 142	1 333	3 551	3 711
TECHNICIAN LEVEL 技術員級								
Electronics Technician 電子技術員	1 686	46	399	3 173	2 439	3 048	1 161	175
Mechanical Technician 機械技術員	150	8	-	512	365	5	245	12
Draughtsman 繪圖員	134	-	2	27	60	12	-	4
Manufacturing/Quality Assurance Technician 製造／品質保證技術員	258	-	16	363	66	-	-	-
Supervisor/Foreman/Leader 監督／管工／組長	271	-	-	171	1 249	158	719	1
Programmer 程序編製員	536	-	-	235	2 219	507	175	320
Web Developer/Designer 網站開發員／設計員	642	-	-	401	710	32	8	-
Sales Technician 推銷技術員	2 664	-	210	4 219	4 626	942	494	661
Sub-total 小計	6 341	54	627	9 101	11 734	4 704	2 802	1 173
CRAFTSMAN LEVEL 技工級								
Cable Joiner/Wireman 電纜接駁技工／駁線技工	242	-	190	264	2	-	-	-
Electronics Craftsman 電子技工	490	64	738	2 594	194	-	-	-
Electrician 電氣技工	24	-	91	558	113	-	-	-
Mechanic 技工	40	-	5	483	118	-	-	-
Sub-total 小計	796	64	1 024	3 899	427	-	-	-
OPERATIVE LEVEL 操作工級								
Operator 生產線操作工	1 120	603	1 866	160	-	154	-	-
Sub-total 小計	1 120	603	1 866	160	-	154	-	-
GRAND TOTAL 總計	10 470	721	3 517	13 192	13 303	6 191	6 353	4 884

SKILLS EMPLOYEES NEED TO ENHANCE
僱員需要加強培訓的技能

Skills 技能	No. of Employees 僱員人數			
	Technologist 技師	Technician 技術員	Craftsman 技工	All 總數
Management Skills 管理技能				
101 Production and engineering management 工業生產及工程管理	1 453	128	-	1 581
102 Marketing management 經銷管理	150	884	-	1 034
103 Project management 項目管理	2 417	380	-	2 797
104 Quality management 品質管理	1 903	575	10	2 488
105 Purchasing management 採購管理	12	6	-	18
106 People management 人事管理	981	139	-	1 120
107 Leadership skills 領導能力	2 270	846	-	3 116
China-related Knowledge and World Vision 有關中國的知識及世界視野				
201 Social and economic development in China 在中國內地的社會和經濟發展	-	552	-	552
202 Laws and regulatory restrictions to China 進入中國市場的法律和規條限制	34	22	-	56
203 Trade practices in the mainland of China 在中國內地的營商常規	200	100	-	300
204 Cross-cultural knowledge 跨文化的知識	12	-	-	12
205 World vision 世界視野	215	27	-	242
Language Skills 語文能力				
301 Spoken English 英語會話	110	1 407	165	1 682
302 Written English 英文書寫能力	477	2 354	61	2 892
303 Putonghua 普通話	245	2 287	140	2 672
304 Written Chinese 中文書寫能力	-	8	146	154
Interpersonal and Intrapersonal Skills for the Workplace 工作間的人際及個人才能				
401 Problem solving 解決問題	2 366	9 499	1 871	13 736
402 Creativity 創意力	614	2 700	74	3 388
403 Critical thinking 批判思考能力	146	868	21	1 035
404 Communication skills 溝通技巧	1 056	10 611	1 855	13 522
405 Team building 團隊建立	988	6 737	1 444	9 169
406 Time management skills 時間管理技巧	856	1 725	86	2 667
407 Optimism/Positive 樂觀/積極	112	3 365	327	3 804
408 Self-esteem 自尊	-	-	74	74
409 Perseverance 毅力	-	2 162	516	2 678
410 Change management skills 變革管理技巧	272	589	-	861
411 Customer services skills 客戶服務技巧	599	9 320	1 842	11 761
412 Numerical skills 數學運用技巧	-	4	-	4
413 Ability to learn/adapt new skills/knowledge 學習或適應新科技、新知識的能力	1 292	7 525	864	9 681
Others 其他				
699 Others	221	975	367	1 563

**RECOMMENDED NUMBER OF TRAINEES
TO BE TAKEN ON ANNUALLY FOR THE NEXT FEW YEARS**

建議未來幾年每年應取錄的受訓者人數

Job Title 職稱	No. of Workers Employed at Time of Survey (2012) 調查期間 (2012年) 僱員人數	Recommended Number of Trainees to be Taken on Annually Starting from 2012 建議由2012年起 每年取錄的受訓者人數
TECHNOLOGIST LEVEL 技師級		
Electronics Engineer 電子工程師	7 586	248 - 304
Electrical Engineer 電機工程師	721	24 - 29
Mechanical Engineer 機械工程師	874	29 - 35
Manufacturing/Quality Assurance Engineer 製造/品質保證工程師	815	27 - 33
Chemical Engineer 化學工程師	51	2
Product/Graphic Designer 產品/平面設計員	315	10 - 13
System Analyst 系統分析員	1 620	53 - 65
Sub-total 小計	11 982	392 - 480
TECHNICIAN LEVEL 技術員級		
Electronics Technician 電子技術員	12 127	658 - 805
Mechanical Technician 機械技術員	1 297	70 - 86
Draughtsman 繪圖員	239	13 - 16
Manufacturing/Quality Assurance Technician 製造/品質保證技術員	703	38 - 47
Supervisor/Foreman/Leader 監督/管工/組長	2 569	139 - 170
Programmer 程序編製員	3 992	217 - 265
Web Developer/Designer 網站開發員/設計員	1 793	97 - 119
Sales Technician 推銷技術員	13 816	750 - 917
Sub-total 小計	36 536	1 984 - 2 425
CRAFTSMAN LEVEL 技工級		
Cable Jinter/Wireman 電纜接駁技工/駁線技工	698	19 - 23
Electronics Craftsman 電子技工	4 080	111 - 136
Electrician 電氣技工	786	21 - 26
Mechanic 技工	646	18 - 22
Sub-total 小計	6 210	169 - 207

Membership of the Electronics and Telecommunications Training Board
(March 2013)

電子業及電訊業訓練委員會委員名單
(2013年3月)

Chairman:

主席

Mr NG Kwok-ho, Victor (nominated by the Hong Kong Electronic Industries Association Limited)
吳國豪先生 (香港電子業商會提名)

Vice-Chairman:

副主席

Ir Dr TONG Wai-kyok, Aaron (Ad Personam)
唐偉國博士、工程師 (獨立人士)

Members:

委員

Ir CHAN Pak-ming Daniel (nominated by the Hong Kong Institution of Engineers)
陳柏明工程師 (香港工程師學會提名)

Mr Kenny CHEUNG (nominated by an Electronics Manufacturing Company (Semi-Conductor))
張惠權先生 (一間半導體製造公司提名)

Ir CHIU Ping-yiu Raymond (nominated by the Hong Kong Productivity Council)
招炳耀工程師 (香港生產力促進局提名)

Ms CHOW Wai-ye, Winnie (nominated by an Electronics Trading/Engineering Services Company)
鄒惠儀女士 (一間電子貿易/工程服務公司提名)

Ir KWONG Wai-chuen, Ricky (nominated by a Telecommunication Company (the Fixed Telecommunication Network Services Sector))
鄺偉銓工程師 (一間固定電訊網絡服務公司提名)

Mr LAM Lum-lee, Mark (nominated by an Electronics Manufacturing Company (Components/ Parts))
林倫理先生 (一間電子元件及配件製造公司提名)

Mr Sylvian LEE 李志雄先生	(nominated by a Telecommunication Company (The Mobile Telecommunication Network Services Sector)) (一間流動電訊網絡服務公司提名)
Mr LEUNG Ding-kau 梁定球先生	(nominated by an Electronics Manufacturing Company (Computers and Related Peripherals)) (一間電腦及有關周邊裝置製造公司提名)
Mr LEUNG Wai-boon 梁維本先生	(nominated by a Broadcasting Company) (一間廣播公司提名)
Mr MA Fung-on 馬逢安先生	(nominated by an electronics manufacturing company (Consumer Products)) (一間電子消費產品製造公司提名)
Prof MOK Kwok-tai, Philip 莫國泰教授	(nominated by a Local University) (本地一大學提名)
Mr NG Wing-ka, Jimmy 吳永嘉先生	(nominated by the Chinese Manufacturers' Association of Hong Kong) (香港中華廠商聯合會提名)
Mr TAM Chi-chung 譚志聰先生	(nominated by the Hong Kong & Kowloon Electronics Industry Employees' General Union) (港九電子工業職工總會提名)
Mr TSE Hung-keung, Christopher 謝鴻強先生	(nominated by the Federation of Hong Kong Industries) (香港工業總會提名)
Mr TSE Wing-nam 謝永南先生	(nominated by an Electronics Manufacturing Company (Telecommunications)) (一間電訊器材製造公司提名)
Ir CHAK Ho-leung 陳浩樑工程師	(representative of the Director of Electrical and Mechanical Services) (機電工程署署長代表)
Mr CHEUK Sing-tak, Sanda 卓聖德先生	(representative of the Director-General of Telecommunications) (電訊管理局總監代表)
Mr NG Ka-lok, Eric 吳家樂先生	(representative of the Director-General of Trade and Industry) (工業貿易署署長代表)

Dr NG Chak-man
伍澤文博士

(representative of the Executive Director of the
Vocational Training Council)
(職業訓練局執行幹事代表)

In Attendance:
列席者

Dr CHIU Ping-kuen, Peter
趙炳權博士

Head of Department (Electronic & Information
Engineering), Hong Kong Institute of Vocational
Education (Shatin)
香港專業教育學院 (沙田) 電子及資訊工程系
系主任

Mr HUI Chi-kwok
許志國先生

Manager-In-Charge, Pro-Act Training and
Development Centre (Electronics)
卓越培訓發展中心 (電子業) 中心主管

Adviser:
顧問

Mr LAM Kwok-luen
林國聯先生

Governor Asia Pacific
The Society of Motion Picture and Television
Engineers (Hong Kong Section)
電影電視工程師協會香港分會 亞太區理事

Secretary:
秘書

Mr CHENG Tai-man
鄭泰民先生

(Vocational Training Council)
(職業訓練局)

- This is a blank page -

- 空白頁 -

Electronics and Telecommunications Training Board

Terms of Reference

1. To determine the manpower demand of the industry, including the collection and analysis of relevant manpower and student/trainee statistics and information on socio-economic, technological and labour market developments.
2. To assess and review whether the manpower supply for the industry matches with the manpower demand.
3. To recommend to the Vocational Training Council (VTC) the development of vocational education and training facilities to meet the assessed manpower demand.
4. To advise the Hong Kong Institute of Vocational Education (IVE) and training & development centres on the direction and strategic development of their programmes in the relevant disciplines.
5. To advise on the course planning, curriculum development and quality assurance systems of the IVE and training & development centres.
6. To prescribe job specifications for the principal jobs in the industry defining the skills, knowledge and training required.
7. To advise on training programmes for the principal jobs in the industry specifying the time a trainee needs to spend on each skill elements.
8. To tender advice in respect of skill assessments, trade tests and certification for in-service workers, apprentices and trainees, for the purpose of ascertaining that the specified skill standards have been attained.
9. To advise on the conduct of skill competitions in key trades in the industry for the promotion of vocational education and training as well as participation in international competitions.
10. To liaise with relevant bodies, including employers, employers' associations, trade unions, professional institutions, training and educational institutions and government departments, on matters pertaining to the development and promotion of vocational education and training in the industry.
11. To organize seminars/conferences/symposia on vocational education and training for the industry.
12. To advise on the publicity relating to the activities of the Training Board and relevant vocational education and training programmes of the VTC.
13. To submit to the Council an annual report on the Training Board's work and its recommendations on the strategies for programmes in the relevant disciplines.
14. To undertake any other functions delegated by the Council in accordance with Section 7 of the Vocational Training Council Ordinance.

電子業及電訊業訓練委員會

職權範圍

1. 確定業內的人力需求，包括收集、分析相關的人力和學生／學員統計數字，以及關於社會經濟、科技及人力市場發展的資料。
2. 評估及研究本業的人力供求是否平衡。
3. 就發展業內專業教育及訓練設施應付人力需求，向職業訓練局提供意見。
4. 就相關學科的課程發展方向及策略，向香港專業教育學院(IVE)、卓越培訓發展中心提出建議。
5. 就 IVE、卓越培訓發展中心的課程策劃、課程發展及質素保證制度提供意見。
6. 擬訂本業主要職務的工作範圍，界定所需的技能、知識及訓練。
7. 建議本業主要職務訓練方案，訂定每種技能所需的訓練期。
8. 對技術評估、技能測驗及證書頒發制度提供意見，以確定從業員、學徒及見習員的技能水平。
9. 就本業主要行業舉辦技能比賽提供意見，以推廣專業教育與訓練和派員參加國際賽事。
10. 就本業專業教育及訓練的發展與推廣事宜，與僱主、僱主聯會、工會、專業團體、訓練及教育機構、政府部門等聯絡。
11. 為本業舉辦有關專業教育及訓練的研討會與會議。
12. 就業內訓練委員會工作、有關職訓局專業教育及訓練課程的宣傳事宜提供意見。
13. 每年向局方呈交訓練委員會工作報告，以及相關學科課程發展策略建議。
14. 根據《職業訓練局條例》第 7 條，負責局方所委派的其他工作。

Vocational Training Council 職業訓練局

Headquarters Division 2 總辦事處二科
16F VTC Tower, 27 Wood Road, Wan Chai, Hong Kong 香港灣仔活道27號職業訓練局大樓16樓
www.vtc.edu.hk

Telephone No 電話

Facsimile No 傳真

Our Reference 本局檔號 (11) in EC/4/2 (2012)

Your Reference 來函檔號



3 April 2012

Dear Sir/Madam,

The 2012 Manpower Survey of the Electronics Industry

The Electronics and Telecommunications Training Board of the Vocational Training Council is appointed by the Government of the Hong Kong Special Administrative Region to be responsible for all matters pertaining to the planning and training of manpower in the electronics industry.

With the assistance of the Census and Statistics Department, the Training Board will conduct the 2012 manpower survey of the industry from 16 April to 15 June 2012 to collect the following information about each of the principal jobs in the industry:

- (a) the number of employees at present employed,
- (b) the number of employees at present under training,
- (c) the number of existing vacancies, and
- (d) a forecast of the total number of employees by April 2013.

The information collected will be handled in strict confidence and will be published only in the form of statistical summaries without reference to any individual establishment.

I am forwarding for your reference and completion, the following documents in both English and Chinese:

- (a) a questionnaire (Appendix A);
- (b) an explanatory note on the questionnaire (Appendix B); and
- (c) a list of job descriptions for the principal jobs in the electronics industry (Appendix C).

During the period of the survey, an officer of the Census and Statistics Department will contact your office, and if necessary, assist in the completion of the questionnaire for processing.

I sincerely hope that you will co-operate in this survey to enable the Electronics and Telecommunications Training Board to make training plans for the benefit of the industry. The Manpower Survey Report will be uploaded onto the VTC website at <http://ectb.vtc.edu.hk>.

Thank you for your kind participation and contribution to the electronics industry. Should you have any queries in connection with the survey, please contact the Manpower Statistics Section of the Census and Statistics Department by telephoning 2116 8436.

Yours faithfully,



(Victor NG)
Chairman

Electronics and Telecommunications Training Board

Headquarters Division 2 總辦事處二科

16F VTC Tower, 27 Wood Road, Wan Chai, Hong Kong 香港灣仔活道27號職業訓練局大樓16樓
www.vtc.edu.hk

Telephone No 電話

Facsimile No 傳真

3748 9400 / 3748 9401

Our Reference 本局檔號 (11) in EC/4/2 (2012)

Your Reference 來函檔號



各位僱主：

電子業二零一二年人力調查

職業訓練局電子業及電訊業訓練委員會由香港特別行政區政府委任，負責一切有關電子業的人力策劃及訓練事宜。

在政府統計處協助下，本訓練委員會將於本年四月十六日至六月十五日期間，進行電子業二零一二年人力調查，蒐集本業各主要職務的資料：

- (一) 現有僱員人數；
- (二) 現有受訓人數；
- (三) 現有空缺額；
- (四) 預計二零一三年四月時的僱員總數。

調查所得資料絕對保密，只以摘要統計數字發表，並不提及個別機構。

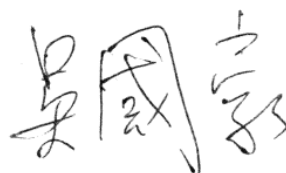
現附上以下中英對照文件，供貴機構參閱填寫：

- (一) 調查表（附錄 A）；
- (二) 調查表附註（附錄 B）；
- (三) 電子業主要職務工作說明（附錄 C）。

調查期間，政府統計處職員會聯絡 貴機構，如有需要，將造訪 貴機構協助填寫並收回填妥調查表。

是次調查，懇請 貴機構惠予合作，使本訓練委員會能為電子業定出人力訓練計劃。人力調查報告書將會上載本局網頁，網址為 <http://ectb.vtc.edu.hk>，歡迎下載。

感謝 貴機構積極參與及對電子業作出貢獻。如對調查有任何查詢，請致電 2116 8436 與政府統計處人力統計組聯絡。



電子業及電訊業訓練委員會主席
吳國豪

二零一二年四月三日

CONFIDENTIAL
WHEN DATA ENTERED
填入數據後即成
機密文件

VOCATIONAL TRAINING COUNCIL
職業訓練局

THE 2012 MANPOWER SURVEY OF THE ELECTRONICS INDUSTRY
電子業二零一二年人力調查

QUESTIONNAIRE
調查表

PLEASE READ THE EXPLANATORY NOTES BEFORE COMPLETING THIS QUESTIONNAIRE
填表前，請參閱附註

For official use only: 此欄毋須填寫	Rec. Type	Survey Code	Industry Code	Establishment No.	Enumerator's No.	Editor's No.	Check Digit	No. of Employees Covered by the Questionnaire
	1	05 2 3	4 5 6 7 8 9	10 11 12 13 14 15	16 17	18 19	20 21 22	23 24 25 26 27

NAME OF ESTABLISHMENT:
機構名稱

ADDRESS:
地址

TYPE OF PRODUCT/SERVICE:
產品／服務

TOTAL NUMBER OF PERSONS ENGAGED:
僱員總人數

NAME OF PERSON TO CONTACT:
聯絡人姓名

POSITION:
職位

TEL. NO.:
電話

FAX NO.:
圖文傳真

E-MAIL:
電郵

98

Part I 第一部份

(A) Job 工作		(B) Average Monthly Income 每月平均收入		(C) Number Employed at Date of Survey (excl. trainees) 現有僱員人數 (受訓者除外)	(D) Forecast of Number Employed 12 Months from Now (excl. trainees) 預計十二個月後僱員人數 (受訓者除外)	(E) Number of Vacancies at Date of Survey (excl. trainees) 現有空缺額 (受訓者除外)	(F) Number of Trainees at Date of Survey 現有受訓者人數	Average Monthly Income 每月平均收入 Enter in column B employee's average monthly income range according to the following codes: 請將僱員的每月平均收入幅度按照下列類別編號填入B欄內:	
Title 職稱	Rec. Type	Job Code 職位編號	Code 編號						
For Official Use Only 此欄毋須填寫		8-10	11	12-15	16-19	20-22	23-25	Average Monthly Income Range 每月平均收入幅度	
TECHNOLOGIST LEVEL 技師級									
1	Electronics Engineer 電子工程師	2	1 0 1					1 Under \$8,001 以下	
2	Electrical Engineer 電機工程師	2	1 0 2					2 \$8,001 - \$10,000	
3	Mechanical Engineer 機械工程師	2	1 0 3					3 \$10,001 - \$15,000	
4	Manufacturing/Quality Assurance Engineer 製造/品質保證工程師	2	1 0 4					4 \$15,001 - \$20,000	
5	Chemical Engineer 化學工程師	2	1 0 5					5 \$20,001 - \$25,000	
6	Product/Graphic Designer 產品/平面設計員	2	1 0 6					6 \$25,001 - \$30,000	
7	System Analyst 系統分析員	2	1 0 7					7 Over \$30,000 以上	
TECHNICIAN LEVEL 技術員級									
8	Electronics Technician 電子技術員	2	2 0 1					Remark 備註	
9	Mechanical Technician 機械技術員	2	2 0 2						
10	Draughtsman 繪圖員	2	2 0 3						
11	Manufacturing/Quality Assurance Technician 製造/品質保證技術員	2	2 0 4						
12	Supervisor/Foreman/Leader 監督/管工/組長	2	2 0 5						
13	Programmer 程式編製員	2	2 0 6						
14	Web Developer/Designer 網站開發員/設計員	2	2 0 7						
15	Sales Technician 推銷技術員	2	2 0 8						
CRAFTSMAN LEVEL 技工級									
16	Cable Jinter/Wireman 電纜接駁技工/駁線技工	2	3 0 1						
17	Electronics Craftsman 電子技工	2	3 0 2						
18	Electrician 電氣技工	2	3 0 3						
19	Mechanic 技工	2	3 0 4						
OPERATIVE LEVEL 操作工級									
20	Operator 生產線操作工	2	4 0 1						
21		2							
22		2							
23		2							
24		2							
25		2							

Note 1 附註一 If additional lines are necessary, please tick here and enter on supplementary sheet(s).
如此頁填滿，請先將(✓)號填入此 內，然後在附頁繼續填寫。

Note 2 附註二 The term 'trainees' includes all trainees receiving any form of training and apprentices under a contract of apprenticeship.
「受訓者」包括正在接受各種訓練的人士，以及簽有學徒合約的登記學徒。

Part II 第二部份

1. **Internal Promotion**
內部晉升

Please fill in the number of internal promotion in the past 12 months.
請填寫過去十二個月內，內部晉升的人數

Rec. Type	From Technician to Technician 由技術員晉升至技術員	From Craftsman to Technician 由技工晉升至技術員	From Others to Craftsman 由其他職級晉升至技工
3	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>
1	8 9 10	11 12 13	14 15 16

For official use only
此欄毋須填寫

17

2. **Hong Kong Technical Personnel Dispatched Outside Hong Kong**
遣派香港以外的香港技術人員

Please enter below the number of technical personnel paid by Hong Kong who had been dispatched to work for more than half year outside Hong Kong during the 12 months prior to the survey.
請填寫調查前十二個月內，由香港支薪而被派往外地工作超過半年的技術人員數目

Number of Technologists 技師人數	Number of Technicians 技術員人數	Number of Craftsmen 技工人數
<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>
18 19 20 21	22 23 24 25	26 27 28 29

For official use only
此欄毋須填寫

30

3. **Education and Training an Employee Should Have**
僱員應有的教育及訓練

Technologist 技師	Technician 技術員	Craftsman 技工
Education 教育	Education 教育	Education 教育
<input type="text"/> 31	<input type="text"/> 34	<input type="text"/> 37
Training Mode 訓練方式	Training Mode 訓練方式	Training Mode 訓練方式
<input type="text"/> 32	<input type="text"/> 35	<input type="text"/> 38
Training Period 訓練時間	Training Period 訓練時間	Training Period 訓練時間
<input type="text"/> 33	<input type="text"/> 36	<input type="text"/> 39

Please enter in the boxes the education and training an employee should have according to the following codes:
請將僱員應有的教育及訓練按照下列類別編號填入格內：

Code 編號	Education 教育	Code 編號	Training Mode 訓練方式	Code 編號	Training Period 訓練時間
1	Degree/Associateship or equivalent 大學學位/碩士或同等學歷	1	Graduate traineeship 工科畢業生訓練	1	4 years or above 四年或以上
2	Higher Diploma 高級文憑	2	On-the-job training 在職訓練	2	3 to less than 4 years 三年至四年以下
3	Diploma 文憑	3	Apprenticeship 學徒訓練	3	2 to less than 3 years 二年至三年以下
4	Higher Certificate 高級證書	4	Off-the-job training 職外訓練	4	1 to less than 2 years 一年至二年以下
5	Certificate 證書	5	Others 其他	5	6 to less than 12 months 六至十二個月以下
6	Secondary 5 中五			6	Below 6 months 六個月以下
7	Craft Certificate 技工證書				
8	Secondary 3 or below 中三或以下				

Part III 第三部份

1. Recruitment
招聘

(a) Please fill in the number of new recruits in the past 12 months
請填寫過去十二個月內，新招聘的僱員人數

Number of Technologists 技術員人數	Number of Technicians 技術員人數	Number of Craftsmen 技工人數	Number of Operatives 操作工人數
40 41 42 43	44 45 46 47	48 49 50 51	52 53 54 55
57 58 59 60	61 62 63 64	65 66 67 68	69 70 71 72

(b) Number of recruits who have performed electronics services related duties in their last jobs from item 8(a) above
上列(a)項中，在剛離職的工作崗位上曾執行電子業相關職務的人數

Number of Technologists 技術員人數	Number of Technicians 技術員人數	Number of Craftsmen 技工人數	Number of Operatives 操作工人數

For official use only
此欄毋須填寫

56

2. Employees Left
僱員離職

Please fill in the number of employees who fulfilled the probation period and had left your establishment in the past 12 months
請填寫過去十二個月內，過了試用期而離職的僱員人數

Number of Technologists 技術員人數	Number of Technicians 技術員人數	Number of Craftsmen 技工人數	Number of Operatives 操作工人數
73 74 75 76	77 78 79 80	81 82 83 84	85 86 87 88

For official use only
此欄毋須填寫

89

3. Skills an Employees Need to Enhance
僱員需加強培訓的技能

Please indicate the three most important skills that your employees need to enhance. (Please see the table on the right for the choice of skills.)
你認為貴機構現有僱員在那三方面技能最需加強培訓。(請參閱右面的編號表以選擇技能。)

Technologist 技師	90 91 92	93 94 95	96 97 98
Technician 技術員	99 100 101	102 103 104	105 106 107
Craftsman 技工	108 109 110	111 112 113	114 115 116

Code
編號

Types of skills / knowledge / attributes
技能/知識/個人特質的類別

Management skills 管理技能	Language skills 語文技能
101 Production and engineering management 工業生產及工程管理	301 Spoken English 英語會話
102 Marketing management 經銷管理	302 Written English 英文書寫能力
103 Project management 項目管理	303 Putonghua 普通話
104 Quality management 品質管理	304 Written Chinese 中文書寫能力
105 Purchasing management 採購管理	Interpersonal and intrapersonal skills for the workplace 工作間的人際及個人才能
106 People management 人事管理	401 Problem solving 解決問題
107 Leadership skills 領導能力	402 Creativity 創意力
China-related knowledge and world vision 有關中國的知識及世界視野	403 Critical thinking 批判思考能力
201 Social and economic development in the mainland of China 在中國大陸的社會和經濟發展	Communication skills 溝通技巧
202 Laws and regulatory restrictions for access to China's market 進入中國市場的法律和規條限制	Team building 團隊建立
203 Trade practices in the mainland of China 在中國大陸的營商慣例	Time management skills 時間管理技巧
204 Cross-cultural knowledge 跨文化的知識	Optimism/Positive 樂觀/積極
205 World vision 世界視野	408 Self-esteem 自尊
	409 Perseverance 毅力
	699 Others * 其他*

* Please specify if skills code = 699.
* 若技能編號 = 699，請說明。

For official use only
此欄毋須填寫

Est. No. _____

The 2012 Manpower Survey of the
Electronics Industry
電子業二零一二年人力調查

Explanatory Note
附 註

1. Please ignore the numbers of the row immediately beneath the headings. They are purely for data processing.
每行標題下的號碼只供資料處理用，請毋須理會。
2. Before completing the questionnaire, please read carefully the job titles and job descriptions in Appendix C.
填寫調查表前，請先詳閱附錄 C 所列的職稱與工作說明。
3. Please complete the columns ('A' to 'F') of the questionnaire and insert a zero (0) for any column not applicable to your establishment.
請填寫表內各欄（「A」至「F」），並在不適用於貴機構的各欄內填入（0）符號。
4. Please fill in information as accurate as possible because the information collected from this survey is vital for determining the manpower requirements of the industry in order that the Electronics and Telecommunications Industry Training Board can make meaningful recommendations to Government on how to meet training needs.
請填入準確資料，因是項資料對於確定本業的人力需求極為重要，而電子業及電訊業訓練委員會亦將以此為根據，向政府提供解決訓練需求的建議。
5. Job Titles - Column 'A'
職稱 —— 「A」欄
 - (a) The job titles and code numbers are pre-printed.
職稱及職務編號已代為印上。
 - (b) Please add in column 'A' titles of any technical jobs not mentioned in Appendix C, and briefly describe them and indicate their skill levels.
如貴機構另有技術性職務名稱未載於附錄 C 者，請一併填入「A」欄內，並扼要說明其工作性質及技能等級。
 - (c) Please classify an employee according to his/her main duty irrespective of any additional secondary duties he/she may be required to perform (e.g. a technician, who works mainly as an electronics technician but is also required to perform the work of a draughtsman occasionally, should be classified as an electronics technician and not as a draughtsman).
請根據僱員的主要職務分類，而不以其兼任的其他職務分類（例如，一名技術員的主要職務為電子技術員，但有時須擔任繪圖員的工作，則應歸類為電子技術員而非繪圖員）。

6. Average Monthly Income - Column 'B'
 每月平均收入 —— 「B」欄
 Please enter into this column the code for average monthly income range for each type of employees. The income should include basic wages, guaranteed year-end bonus, regular overtime pay, cost of living allowance, meal allowance etc., if any. If you have more than one employee doing the same job, please enter the average figure. (Please refer to the codes in the last column of the questionnaire.)
 請在「B」欄填入每類僱員的每月平均收入編號，這包括底薪固定發放的年終花紅、定期超時工作工資、生活津貼、膳食津貼等。若從事同類工作的僱員多於一名，則請取其平均數字。(請參閱調查表最後一欄的類別編號)
7. Number Employed at Date of Survey (Excluding Trainees) - Column 'C'
 現有僱員人數(受訓者除外) —— 「C」欄
 Please fill in the total number of employees (excluding trainees and apprentices) in your establishment.
 請將貴機構目前所僱用的全部僱員人數(受訓者及學徒除外)填入此欄。
8. Forecast of Number Employed 12 Months from Now (Excluding Trainees) - Column 'D'
 預計十二個月後的僱員人數(受訓者除外) —— 「D」欄
 The forecast of number employed means the likely number of employees (excluding trainees and apprentices) you will be employing 12 months from now.
 預計僱員人數指貴機構於十二個月後可能僱用的員工總數(受訓者及學徒除外)。
9. Number of Vacancies at Date of Survey (Excluding Trainees) - Column 'E'
 現有空缺額(受訓者除外) —— 「E」欄
 Please fill in the number of existing vacancies (excluding those for trainees and apprentices).
 請填入貴機構現有的空缺額(受訓者及學徒的空缺數目除外)。
 'Existing vacancies' refer to those unfilled, immediately available job openings for which the establishment is actively trying to recruit personnel at date of survey.
 「現有空缺額」是指該職位仍懸空，須立刻填補，而現正積極招聘人員填補。
10. Number of Trainees at Date of Survey - Column 'F'
 現有受訓者人數 —— 「F」欄
 Please fill in the total number of employees undergoing training.
 請將正在受訓的僱員人數填入此欄。
11. Internal Promotion
 內部晉升
 An internal promotion is the promotion of an employee to a higher level job by virtue of his/her performance or abilities. Please fill in the no. of internal promotion from "Technician to Technologist", from "Craftsman to Technician" and from "Others to Craftsman" in the past 12 months in the respective columns.
 內部晉升指一名僱員由於表現良好或具工作才能而獲晉升至較高級職位。請將過去十二個月貴機構內部由技術員晉升至技師、由技工晉升至技術員，以及由其他職級晉升至技工的人數填入所屬欄內。

12. Hong Kong Technical Personnel Dispatched Outside Hong Kong
遣派香港以外的香港技術人員
Please enter the number of technologists, technicians and craftsmen paid by Hong Kong who had been dispatched to work for more than half year outside Hong Kong during the 12 months prior to the survey.
請填寫調查前十二個月內，由香港支薪而被遣派往外地，工作超過半年的技師、技術員及技工數目。
13. Education and Training an Employee Should Have
僱員宜有的教育及訓練
The purpose of this column is to solicit your view on the education and training which an employee in a particular job should have if he/she were to carry out his/her work competently. (Please refer to the codes in the same page of the questionnaire.)
此欄目的在調查貴機構的意見：各類職位的僱員宜具備何種教育及訓練，才能勝任其工作。(請參閱調查表同一頁的類別編號)。
14. Recruitment
招聘
(a) Please enter the number of new recruits in the past 12 months;
請填寫過去十二個月內，貴機構新招聘的僱員人數；
(b) and the number of recruits who have performed electronics services related duties in their last jobs from items (a).
及在上列 (a) 項中，入職前是從事電子業相關職務的人數。
15. Employees Left
僱員離職
Please enter the number of employees who fulfilled the probation period and had left your establishment in the past 12 months.
請填寫過去十二個月內，貴機構過了試用期而離職的僱員人數。
16. Skills an Employee Need to Enhance
僱員需加強培訓的技能
Please indicate the three most important skills that your employees need to enhance.
(Please refer to the codes in the same page of the questionnaire.)
此欄目的在調查貴機構的意見：各類職位的僱員在那三方面技能最需要加強培訓。
(請參閱調查表同一頁的類別編號)。
17. Example
例子
To facilitate proper completion, an example is given below for your reference.
為協助閣下填表，現將例子附錄於後，以供參考。

Example
例子

(A) Job 工作		(B) Average Monthly Income 每月平均收入			(C) Number Employed at Date of Survey (excl. trainees) 現有僱員人數 (受訓者除外)	(D) Forecast of Number Employed 12 Months from Now (excl. trainees) 預計十二個月後僱員人數 (受訓者除外)	(E) Number of Vacancies at Date of Survey (excl. trainees) 現有空缺額 (受訓者除外)	(F) Number of Trainees at Date of Survey 現有受訓者人數	Average Monthly Income 每月平均收入 Enter in column B employee's average monthly income range according to the following codes : 請將僱員的每月平均收入幅度按照下列類別編號填入B欄內 :
Title 職稱	Rec. Type	Job Code 職位編號	Code 編號						
For Official Use Only 此欄毋須填寫	1	8-10	11	12-15	16-19	20-22	23-25		
TECHNOLOGIST LEVEL 技師級									
1 Electronics Engineer 電子工程師	2	1 0 1	8	5	6	1	1		
2 Electrical Engineer 電機工程師	2	1 0 2	7	2	2	0	1	1 Under \$8,001 以下	
3 Mechanical Engineer 機械工程師	2	1 0 3	7	2	2	0	0	2 \$8,001 - \$10,000	
4 Manufacturing/Quality Assurance Engineer 製造/品質保證工程師	2	1 0 4	7	1	1	0	0	3 \$10,001 - \$15,000	
5 Chemical Engineer 化學工程師	2	1 0 5						4 \$15,001 - \$20,000	
6 Product/Graphic Designer 產品/平面設計師	2	1 0 6						5 \$20,001 - \$25,000	
7 System Analyst 系統分析員	2	1 0 7						6 \$25,001 - \$30,000	
TECHNICIAN LEVEL 技術員級									
8 Electronics Technician 電子技術員	2	2 0 1	6	3	4	1	1		
9 Mechanical Technician 機械技術員	2	2 0 2	5	1	1	0	0		
10 Draughtsman 繪圖員	2	2 0 3	4	2	2	0	0		
11 Manufacturing/Quality Assurance Technician 製造/品質保證技術員	2	2 0 4							
12 Supervisor/Foreman/Leader 監督/管工/組長	2	2 0 5							
13 Programmer 程式編製員	2	2 0 6							
14 Web Developer/Designer 網站開發員/設計師	2	2 0 7							
15 Sales Technician 推銷技術員	2	2 0 8							
CRAFTSMAN LEVEL 技工級									
16 Cable Joints/Wireman 電纜接駁技工/駁線技工	2	3 0 1							
17 Electronics Craftsman 電子技工	2	3 0 2	3	3	4	1	1		
18 Electrician 電氣技工	2	3 0 3	3	1	1	0	0		
19 Mechanic 技工	2	3 0 4							
OPERATIVE LEVEL 操作工級									
20 Operator 生產線操作工	2	4 0 1	2	5 0	5 5	5	0		
21	2								
22	2								
23	2								
24	2								
25	2								

Note 1
附註一

If additional lines are necessary, please tick here and enter on supplementary sheet(s).
如此頁填滿，請先將 (✓) 號填入此 內，然後在附頁繼續填寫。

Note 2
附註二

The term 'trainees' includes all trainees receiving any form of training and apprentices under a contract of apprenticeship.
「受訓者」包括正在接受各種訓練的人士，以及簽有學徒合約的登記學徒。

JOB DESCRIPTIONS OF PRINCIPAL JOBS IN
THE ELECTRONICS INDUSTRY

電子業主要職務工作說明

Job Code 職位編號	Job Title 職稱	Job Description 工作說明
TECHNOLOGIST LEVEL		技師級
101	<p>Electronics Engineer [Electronics Sales / Support Engineer, Telecommunications Engineer]</p> <p>電子工程師 [電子推銷／支援工程 師，電訊工程師]</p>	<p>Carries out one or more of the following activities: research into electronic engineering / telecommunication engineering problems, design of, technical sales / support, and advice on electronic equipment and systems, components and products, and planning and supervision of their development, production, construction, installation, operation and maintenance. Usually specialises in one or more of the following:</p> <p>(i) computer systems; (ii) consumer electronic products; (iii) electronic instruments and equipment; (iv) semiconductor and electronic components; (v) telecommunication systems; (vi) multimedia electronics, audio-visual and entertainment systems; (vii) other electronic engineering fields.</p> <p>擔任下列一項或多項工作：研究電子工程／研究電 訊工程方面的問題；負責電子設備及系統、零件及 產品的設計、技術推銷／支援及顧問工作；策劃及 督導電子設備及系統、零件及產品的發展、生產、 構造、安裝、操作及保養工作。通常與下列專門範 疇有關：</p> <p>(i) 電腦系統； (ii) 電子消費產品； (iii) 電子儀器及設備； (iv) 半導體及電子零件； (v) 電訊系統； (vi) 多媒體電子、影音及娛樂系統； (vii) 電子工程其他方面的工作。</p>

Job Code 職位編號	Job Title 職稱	Job Description 工作說明
TECHNOLOGIST LEVEL (Continued) 技師級 (續)		
102	Electrical Engineer 電機工程師	Designs and advises on electrical equipment and systems, and plans, and supervises their development, construction, installation, operation, maintenance and repair. 設計電器及電機系統，並就該方面提供意見；策劃及監督電器及電機系統的發展、構造、安裝、操作、保養及維修。
103	Mechanical Engineer 機械工程師	Designs and advises on plant, mechanical parts, moulds and equipment, machinery and tools, and plans and supervises their development, construction, installation, operation, maintenance and repair. 設計廠房、機械配件、工模及設備、機器及工具，並就該方面提供意見；策劃與監督其中的發展、構造、安裝、操作、保養及維修。
104	Manufacturing / Quality Assurance Engineer [Industrial Engineer, Quality Control Engineer] 製造／品質保證工程師 [工業工程師，品質控制工程師]	Carries out one or more of the following activities: (i) Plans, directs and supervises all technical aspects of the manufacturing process to ensure the most efficient and economical means of operation and the maintenance of quality standards; (ii) Plans, directs and supervises the quality assurance / control at all phases of manufacturing, including testing and measurement, of incoming materials and parts, work-in-progress, and finished products to ensure compliance with standards, specifications, safety and environmental regulations. 擔任以下一項或多項工作： (i) 策劃、指導及監督製造程序的各種技術工作，確保採用最快捷經濟的生產方式，並且保持品質標準； (ii) 策劃、指導及監督各製造階段的品質保證／控制工作，包括測試及量度交來物料與配件、半製成品及製成品，確保產品符合標準、規格、安全與環保條例。

Job Code 職位編號	Job Title 職稱	Job Description 工作說明
TECHNOLOGIST LEVEL (Continued) 技師級 (續)		
105	Chemical Engineer 化學工程師	<p>Designs and advises on manufacturing processes in which chemical changes occur, and plans and supervises their development, construction, installation, operation and maintenance to ensure compliance with standards, specifications, and safety and environmental regulations.</p> <p>設計能產生化學變化的製造程序，並就該方面提供意見；策劃及監督其發展、構造、安裝、操作及保養，確保符合標準、規格、安全與環保條例。</p>
106	Product / Graphic Designer 產品／平面設計員	<p>Originates and develops ideas to design, create, modify and arrange the form of manufactured products, layouts and containers for the products based on factors such as design-function relationship, knowledge of design, art concepts, market and pricing characteristics, client specifications, method and cost of production to achieve aesthetically pleasing and functional effect for the products.</p> <p>能根據設計與功能的關係、設計知識、美術概念、市場與價格特性、顧客規格、生產方法及成本等因素進行創作，並加以發揮，以便設計、創作、修改及安排製成品的形狀、結構及包裝，務求產品既美觀又實用。</p>
107	System Analyst [Software Engineer] 系統分析員 [軟件工程師]	<p>Carries out one or more of the following activities:</p> <p>(i) Works closely with user personnel to identify problems, review methods and specify and evaluate information technology (IT) solutions;</p> <p>(ii) In accordance with product specifications, designs system firmware / software using high level and/or assembler languages for electronics, microprocessors, microcomputers and embedded systems.</p> <p>擔任以下一項或多項工作：</p> <p>(i) 與用戶部門緊密合作，確定問題、檢討方法、說明和評估資訊科技的解決辦法；</p> <p>(ii) 依據產品規格，使用高階語言及／或匯編語言，為電子、微處理器、微型電腦及嵌入式系統設計軟件及／或系統軟件。</p>

Job Code 職位編號	Job Title 職稱	Job Description 工作說明
TECHNICIAN LEVEL 技術員級		
201	<p>Electronics Technician [Electronics / Maintenance / Repair and Customer Services Technician, Telecommunications Technician, Computer / Network Technician, Audio-Visual Technician, Electronic Support Technician]</p> <p>電子技術員 [電子／保養／維修及顧客服務技術員，電訊技術員，電腦／網絡技術員，影音技術員，電子支援技術員]</p>	<p>Performs technical tasks, normally under the direction and supervision of an electronics / telecommunications engineer, contributory to design, development, manufacture, technical support, construction, installation, operation, maintenance, repair and customer services of:</p> <ul style="list-style-type: none"> (i) Electronic and electrical products, equipment and systems, such as consumer electronics, home appliances, healthcare electronics, toys, and watch / clock; (ii) Telecommunication systems and equipment, such as telephone, digital broadcasting, high-definition electronic media, wireless / microwave / satellite communication, mobile communication and data communication systems; (iii) Computer and multimedia networks, systems and peripherals; (iv) Audio-visual, entertainment and associated equipment and systems. <p>通常在電子／電訊工程師的督導下擔任技術工作，如參與設計、發展、製造、技術支援、構造、安裝、操作、保養、修理及顧客服務：</p> <ul style="list-style-type: none"> (i) 電子及電機產品、器材及系統，例如消費電子產品、家居電器、保健電子產品、玩具及鐘錶； (ii) 電訊系統及器材，例如電話、數碼廣播、高清電子媒體、無線電／微波／衛星通訊、流動通訊及數據通訊系統； (iii) 電腦及多媒體網絡、系統及周邊設備； (iv) 影音、娛樂及附屬設備與系統。
202	<p>Mechanical Technician</p> <p>機械技術員</p>	<p>Performs technical tasks, normally under the direction and supervision of a mechanical engineer, contributory to design, development, construction, installation, operation, maintenance and repair of plant, mechanical parts and equipment, machinery and tools.</p> <p>通常在機械工程師的督導下擔任技術工作，如參與設計、發展、構造、安裝、操作、保養、修理廠房、機械配件及設備、機器及工具。</p>

Job Code 職位編號	Job Title 職稱	Job Description 工作說明
TECHNICIAN LEVEL (Continued) 技術員級 (續)		
203	Draughtsman 繪圖員	Prepares detail and assembly drawings and circuit diagrams according to design specifications. 按照設計規格繪製明細圖、裝配圖及線路圖。
204	Manufacturing / Quality Assurance Technician [Quality Control Technician] 製造／品質保證技術員 [品質控制技術員]	Performs technical tasks, normally under the direction and supervision of a manufacturing / industrial or a quality assurance / control engineer, contributory to: (i) The efficient and economical operation of the manufacturing process and the maintenance of quality standards; (ii) Quality assurance / control at all phases of manufacturing including testing and measurement of in-coming materials and parts, work-in-progress, and finished products to ensure compliance with standards and specifications, and safety and environmental regulations. 通常在製造／工業或品質保證／控制工程師的監督下擔任： (i) 製造程序中的技術工作，協助以最快捷經濟的方式運作，並且維持產品質素； (ii) 技術工作，協助各製造階段的品質保證／控制事項，包括測試及量度來料與配件、半製成品及製成品，確保產品符合標準、規格、安全與環保條例。
205	Supervisor / Foreman / Leader [Junior Supervisor] 監督／管工／組長 [初級監督]	Performs supervisory duties contributory to the planning and allocation of tasks to workers and trainees, and to the production, inspection, installation, operation, maintenance and repair of components, products, equipment and systems; <u>OR</u> Organises and takes charge of a group or groups of operatives in a section, normally under the direction of a supervisor / foreman. 擔任監督工作，如參與策劃、向工人及受訓者分配工作，以及參與生產、檢查、安裝、操作、保養、修理零件、產品、器材與系統； <u>或</u> 通常在監督／管工指導下，安排及主管部門內一組或多組操作工的工作。

Job Code 職位編號	Job Title 職稱	Job Description 工作說明
TECHNICIAN LEVEL (Continued) 技術員級 (續)		
206	Programmer [Software Technician] 程式編製員 [軟件技術員]	Develops computer programmes and systems to implement embedded systems / software design, normally under the direction and supervision of a software engineer / system analyst. 通常在軟件工程師／系統分析員的督導下研究嵌入式系統／電腦程式，以便推行電腦系統及軟件設計。
207	Web Developer / Designer 網站開發員／設計員	In the mixed technical and creative works, uses tool set to design and create web pages / sites, 2D / 3D graphics and animation and/or other multimedia contents for integration to IT applications according to business requirement, strategy and direction. 按照業務要求、策略及方向，結合科技與創作，使用工具套設計及製作網頁／網站、二維／三維圖像動畫或其他多媒體內容，以便配合電腦應用軟件使用。
208	Sales Technician [Electronic Sales Technician, Electronic Merchandising Technician] 推銷技術員 [電子推銷技術員／電子採購技術員]	Updates / studies / analyses electronic, technical and functional knowledge as well as contemporary trend and development of products, systems, equipment and components from the demands of electronics market, proposes and demonstrates suggestions / follows up orders according to the needs of clients and customers, and liaises with departments and suppliers to provide suitable alternatives in view of the market. Usually involves in one or more of the following: (i) consumer electronics, home appliance and healthcare electronics; (ii) telecommunication systems and equipment; (iii) computer and multimedia networks, systems and peripherals; (iv) audio-visual, entertainment and associated equipment and systems. 更新／學習／分析電子、技術及功能知識，以及市面上的潮流時興新穎的產品、系統、設備及零件；因應顧客需要而提供意見、示範產品及跟進訂單；與其他部門及供應商聯繫以提供適當意見。通常會與下列範疇有關： (i) 消費電子產品、家居電器及保健電子產品； (ii) 電訊系統及器材； (iii) 電腦及多媒體網絡、系統及周邊設備； (iv) 影音、娛樂及附屬設備與系統。

Job Code 職位編號	Job Title 職稱	Job Description 工作說明
CRAFTSMAN LEVEL 技工級		
301	Cable Joiner / Wireman 電纜接駁技工／ 駁線技工	Lays, joints, connects, terminates and maintains underground, submarine, surface and aerial telecommunication cables and wires. 敷設、接駁、端接及保養地底、海底、地面及架空電訊電纜。
302	Electronics Craftsman [Audio Visual, Electronic Servicing, Electronic System Installation, Telecommunications and Surveillance Technical Assistant] 電子技工 [影音、電子維修、電子系統安裝、電訊及監控技術助理]	Carries out one or more of the following activities: (i) Installs, services and maintains consumer electronics, audio-visual products, multimedia and entertainment electronic equipment and systems, In-building Coaxial Cable Distribution System, telecommunications and surveillance systems; (ii) Diagnoses, locates and repairs faults in the maintenance of electronic devices and products, systematically records these faults and recommends changes to minimize such occurrence; (iii) Installs, inspects, tests, repairs, calibrates and maintains electronic, electrical and mechanical instruments, meters, equipment and systems. 擔任以下一項或多項工作： (i) 安裝、保養及及維修消費電子產品、影音產品、多媒體和娛樂電子設備與系統、大廈內同軸電纜分配系統、電訊及監控系統； (ii) 在維修電子裝置及產品的過程中，查出及修理所出現的毛病，有系統地記錄下來，並且建議如何盡量減少毛病出現； (iii) 安裝、查驗、測試、修理、校準及保養電子、電機及機械儀器、儀錶、設備及系統。
303	Electrician 電氣技工	Installs, maintains, tests and repairs electrical wiring, devices and equipment, and building services in buildings and other structures in accordance with regulations and specifications. 按照條例及規格安裝、保養、測試及修理屋宇電線、電器及其他設備。

Job Code 職位編號	Job Title 職稱	Job Description 工作說明
CRAFTSMAN LEVEL (Continued) 技工級 (續)		
304	Mechanic [Maintenance Mechanic / Fitter / Machinist, Tool and Die Maker, Mould and Die Maker and Repairer] 技工 [保養技工／裝配打磨技工，機床工，工具及工模製造技工，工模製造及修理技工]	Carries out one or more of the following activities: (i) Fits, assembles, installs, repairs and maintains plant and machinery and makes replacement parts when required; (ii) Sets up and operates machine tools to produce components according to specifications; (iii) Makes, maintains and repairs press tools, dies, cutting tools, gauges, jigs and fixtures according to drawings and other specifications; (iv) Makes, maintains and repairs moulds and dies for plastics processing machines according to drawings and other specifications. 擔任以下一項或多項工作： (i) 打磨、裝配、安裝、修理、保養廠房及機器，並於需要時製作更換配件； (ii) 按照規格裝設及操作機床，以生產零件； (iii) 按照圖則及其他規格，製造及維修啤孔工具、工模、切削工具、量規及夾具； (iv) 按照圖則及其他規格，製造及修理塑膠機的工模。

Job Code 職位編號	Job Title 職稱	Job Description 工作說明
OPERATIVE LEVEL 操作工級		
401	Operator [Assembler, Soldering Worker, Aligner / Tester, Quality, Assurance / Control Operator, Machine Operator / Attendant, Packer, Stock Handler, Electronic Data Processing Operator, General Worker]	<p>Carries out any one of the operative jobs in assembly line in the areas of:</p> <ul style="list-style-type: none"> (i) Assembles parts in the manufacture of electronics components (semiconductor, computer memory plane etc.) or assembles parts and components into printed circuit boards, modules and finished products, prepares materials by cutting, coats and paints protective or decorative materials onto parts or components; (ii) Performs proper soldering at all solder joints by hand or machine; (iii) Aligns, tests and inspects electronics products on production lines; (iv) Assists the quality assurance / control technician in the inspection of incoming parts and finished products before packaging according to a predetermined quality standard; (v) Operates various previously set-up processing machines, fixtures, continuous plating and etching baths, polishing machine and coil winding machines etc; (vi) Packs finished products into boxes, crates or other containers; (vii) Handles components, parts issued to and returned from assembly line. (viii) Sets, operates and controls data processing and/or data-switching systems, including all peripheral units according to operating instructions; operates data entry machines, which translate manually prepared data into computer readable format and store them into media, verifies / corrects entry data according to standard procedure; (ix) handles odd jobs and undertake other manual work.

Job Code 職位編號	Job Title 職稱	Job Description 工作說明
OPERATIVE LEVEL (Continued) 操作工級 (續)		
	生產線操作工 [裝配工，焊錫工， 校整／測試工，品質保證 ／控制工，機器操作工／ 看值工，包裝工，物料搬 運工，電腦操作員／雜 工]	擔任以下一項或多項工作： (i) 裝配各種零件以製造電子元件（半導體、記憶板等等）或將零件及元件裝配在印刷線路板、模組及製成品上；切割材料；塗膠及鬆保護或裝飾塗料於零件或元件上； (ii) 用手或機器焊接所有焊點； (iii) 校整、測試及檢查生產線上的電子產品； (iv) 協助品質保證／控制技術員，依照預定的品質標準檢查交來配件，並在包裝前檢查製成品； (v) 操作各類已調校妥當的加工機械、夾具、連續運作電鍍及蝕刻設備、磨光機及繞線機等等； (vi) 以木箱、紙盒或其他容器包裝製成品； (vii) 負責搬運裝配工場的元件及零件； (viii) 根據工作指示，調校、操作及控制數據處理及／或數據交換系統，包括周邊設備；操作數據輸入機（可將人手編製的數據翻譯為可供電腦閱讀的資料，並將數據貯存在電腦卡、磁帶、紙帶或磁盤內）；根據標準程序核對／更正輸入的數據； (ix) 擔任雜務及其他勞力工作。

Remark: [] Equivalent

註： [] 其他名稱

