

2006 MANPOWER SURVEY REPORT

ELECTRONICS INDUSTRY

電子業

二〇〇六年人力調查報告

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

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CONTENTS

	<u>Title</u>	<u>Paragraph</u>	<u>Page</u>
	Executive Summary of the Report	1 - 10	1 - 4
	<u>Section</u>		
I	Introduction	1.1 - 1.13	5 - 8
II	Summary of Survey Findings	2.1 - 2.10	9 - 14
III	Conclusions	3.1 - 3.19	15 - 21
IV	Recommendations	4.1 - 4.23	22 - 28

目 錄

	<u>標 題</u>	<u>段 數</u>	<u>頁 數</u>
報告摘要		1 - 10	29 - 32
<u>章 數</u>			
一	緒 論	1.1 - 1.13	33 - 36
二	調查結果摘要	2.1 - 2.10	37 - 42
三	結 論	3.1 - 3.19	43 - 49
四	建 議	4.1 - 4.23	50 - 56

LIST OF APPENDICES AND ANNEXES

<u>Appendix</u>	<u>Title</u>	<u>Page</u>
1	Manpower Statistics of the Electronics Industry Sector 1 - Manufacturing	59
2	Manpower Statistics of the Electronics Industry Sector 2 - Trading and Services	60
3	Manpower Statistics of the Electronics Industry Sector 3 - Telecommunications Services	61
4	Manpower Statistics of the Electronics Industry Sector 4 - Wholesale	62
5	Manpower Statistics of the Electronics Industry Sector 5 - Design Houses, Relevant Departments in Educational Institutions and Government	63
6	Manpower Statistics of the Whole Electronics Industry	64
7	Distribution of Employees by Monthly Income Range	65
8	Recommended Number of Trainees to be Taken on Annually for the Next Few Years	66
 <u>Annex</u>		
A	Membership of the Electronics and Telecommunications Training Board	67 - 70
B	Terms of Reference	71 - 72
C	Survey Questionnaire	73 - 76
D	Explanatory Note on the Questionnaire	77 - 80
E	Job Descriptions of Principal Jobs	81 - 88

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 第一類機構（製造）	59
2	電子業人力統計數字 第二類機構（貿易及服務）	60
3	電子業人力統計數字 第三類機構（電訊服務）	61
4	電子業人力統計數字 第四類機構（批發）	62
5	電子業人力統計數字 第五類機構（設計公司、有關大學院系及 政府部門）	63
6	電子業整體人力統計數字	64
7	僱員每月收入幅度的分布情況	65
8	建議未來幾年應增聘的受訓者人數	66
 <u>附 件</u>		
甲	電子業及電訊業訓練委員會委員名單	67 - 70
乙	職權範圍	71 - 72
丙	調查表	73 - 76
丁	調查表附註	77 - 80
戊	主要職務工作說明	81 - 88

Executive Summary of the 2006 Manpower Survey Report of the Electronics Industry

Introduction

The survey was conducted in May 2006 by the Electronics and Telecommunications Training Board of the Vocational Training Council to collect up-to-date manpower information of the electronics industry.

2. The fieldwork of the survey covered 641 establishments which were selected by means of a stratified random sampling method from a total of some 4 100 establishments registered with the Census and Statistics Department. 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 May 2006, a total of 48 491 employees were engaged in the **principal jobs** of electronics engineering and related disciplines in the electronics industry in Hong Kong. The distribution of employees by job level and by sector of the industry is as follows:

Sector	Job Level				Total
	Technologist	Technician	Craftsman	Operative	
1. Manufacturing	1 080	2 087	724	5 513	9 404 (19.4%)
2. Trading and Services	10 519	13 030	3 705	915	28 169 (58.1%)
3. Telecommunications Services	2 075	4 311	807	148	7 341 (15.2%)
4. Wholesale	592	634	198	194	1 618 (3.3%)
5. Design Houses and Relevant Departments in Universities and Government	554	1 125	264	16	1 959 (4.0%)
Total	14 820 (30.6%)	21 187 (43.7%)	5 698 (11.7%)	6 786 (14.0%)	48 491 (100%)

4. At the time of the survey, employers reported a total of 482 trainees and 1 183 vacancies in the electronics industry, representing 1.0% and 2.4% respectively of the workforce. Besides, employers also forecast that the industry would have a workforce of 49 997 workers by May 2007, an increase of 3.1% of the workforce in May 2006.

Manpower Changes

5. Comparing with the manpower statistics collected in the 2004 survey, the number of employees in principal jobs in the electronics industry had increased from 46 594 to 48 491 in two years, representing an annual increment of 2%. All sectors of the industry, except Manufacturing, had expanded and the annual manpower growth was 3% for the Trading and Services Sector and the Telecommunications Services Sector, 1% for the Wholesale Sector, and 2% for Design Houses and Relevant Departments in Educational Institutions and Government. The manpower in the Manufacturing Sector had decreased by 1.5% per annum.

6. The Training Board attributes the above manpower changes to the following:

- (i) Most electronics manufacturers have relocated their production processes to the Chinese Mainland and as a result, the manpower in the Manufacturing Sector continued to shrink but the trend has shown signs of abatement. A number of companies also maintain the high value-added processes in Hong Kong.
- (ii) The Trading, Services and Wholesale Sectors, which employed about 61% of the manpower in the electronics industry, had rebounded with the number of employees increased from 28 116 in 2004 to 29 787 in 2006. This growth in manpower was mainly attributable to the worldwide economic recovery and the rapid development in China, which had stimulated the business and consumer activities in the sectors.
- (iii) Due to the continuous development of the sophisticated telecommunications infrastructure in Hong Kong, and the increased integration of telecommunications services between Hong Kong and the Mainland, there was a steady growth in manpower in the Telecommunications Services Sector over the years, particularly in the technician and craftsman levels.
- (iv) The mild increase in manpower in Design Houses and Relevant Departments in Educational Institutions and Government was attributable to the expansion of IC design business in the sector. The increase occurred mainly at technologist and technician levels.

Conclusions and Recommendations

7. Having considered the latest developments of the industry and the employers' forecast of future manpower requirements, the Training Board believes that in the years ahead there will be an on-going demand for properly trained technologists, technicians and craftsmen to sustain the development of the electronics industry. On the other hand, the demand for operatives (mostly in the Manufacturing Sector) will be limited.

8. The Training Board has also estimated the loss of manpower at different job levels due to natural wastage, i.e. workers leaving the electronics industry through retirement, migration to other industries and other causes. The Training Board has decided that the annual wastage rate for technologists, technicians and craftsmen should remain unchanged at 3%.

9. The Training Board's forecast of the additional manpower required by the electronics industry to cover both wastage and growth from 2007 to 2010 is as follows:

Job Level	Annual Average Additional Demand for Employees
Technologist	800 – 980
Technician	1 070 – 1 300
Craftsman	450 – 550

10. The Training Board urges employers to step up their training efforts to sustain the development of the electronics industry, as quality products and services require more added value through well-trained staff. They should also make use of the facilities in the educational and training institutions and sponsor their employees to attend the relevant courses. Employers are also recommended to contact the Vocational Training Council to set up training schemes including the Apprenticeship Scheme and the New Technology Training Scheme.

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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 HKSAR Government 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, workers 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 May 2006 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 September and data processing was completed in November 2006.

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 May 2007,
- (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.

Scope of Survey

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

Sector 1: Manufacturing

Manufacturers of :

- (i) computing machinery and equipment (HSIC 3822),
- (ii) transistorized radios (HSIC 3831),
- (iii) television receivers and communications equipment (HSIC 3832),
- (iv) sound reproducing and recording equipment and apparatus (HSIC 3833),
- (v) gramophone, records and magnetic tapes (HSIC 3834),
- (vi) electronic parts and components (HSIC 3840),
- (vii) electronic toys (HSIC 3852),
- (viii) electronic industrial apparatus (HSIC 3868), and
- (ix) electronic products, not elsewhere classified (HSIC 3873).

Sector 2: Trading and Services

Establishments of :

- (a) Burglar alarm/intercommunication system installation (HSIC 5516),
- (b) Imports and exports of:
 - (i) scientific and professional instruments and apparatus (HSIC 631805)*,
 - (ii) telephone system (HSIC 631821)*,
 - (iii) telecommunications services (HSIC 631822)*,
 - (iv) electrical goods (HSIC 631823)*,
 - (v) computer, computer peripherals and software packages (HSIC 631824)*,
 - (vi) office machines, appliances and equipment (HSIC 631825)*,

- (c) Data processing and tabulating services (HSIC 8333)*, and
- (d) Other electronics engineering services not included in (a) to (c).

Sector 3: Telecommunication Services

Establishments of :

- (a) Wireline based fixed telecommunications network services (HSIC 732101),
- (b) Fixed telecommunications network services, nowhere else classified (HSIC 732199),
- (c) Radio paging services (HSIC 7322),
- (d) Mobile Communications Services (HSIC 732901),
- (e) Internet access services (HSIC 732902),
- (f) Satellite communications services (HSIC 732903), and
- (g) Radio and television stations and studios (HSIC 9411)

Sector 4: Wholesale

Establishments of wholesale of :

- (a) Telephone system (HSIC 611821),
- (b) Telecommunications equipment (excluding telephone system) (HSIC 611822),
- (c) Electrical goods (excluding machinery, office and telecommunications equipment and appliances) (HSIC 611823),
- (d) Computer, computer peripherals and software packages (HSIC 611824),
- (e) Office machines, appliances and equipment (excluding computer, furniture and fixtures) (HSIC 611825).

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

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

- 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.

1.7 Prior to the survey, the Census and Statistics Department recorded some 4 100 establishments in the above five 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 641 samples were selected to be surveyed. The data collected were 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 C), explanatory notes (Annex D) and list of principal jobs (Annex E) were mailed to the 641 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 641 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 641 establishments, 434 completed the questionnaires and 34 refused to supply information. The remaining 173 establishments had either moved, closed and could not be traced, or no longer engaged in the trade. The effective response rate was 92.7%.

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 2007 a statistical report which presented the main manpower data collected from the survey. The statistical report was subsequently mounted on the VTC web site 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 May 2006, a total of 126 406 persons were employed in the electronics industry in Hong Kong. Of them, 48 491 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
	Technologist	Technician	Craftsman	Operative	
1. Manufacturing	1 080	2 087	724	5 513	9 404 (19.4%)
2. Trading and Services	10 519	13 030	3 705	915	28 169 (58.1%)
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5. Design Houses and Relevant Departments in Universities and Government	554	1 125	264	16	1 959 (4.0%)
Total	14 820 (30.6%)	21 187 (43.7%)	5 698 (11.7%)	6 786 (14.0%)	48 491 (100%)

Figure 2.1 : Distribution of Employees by Job Level

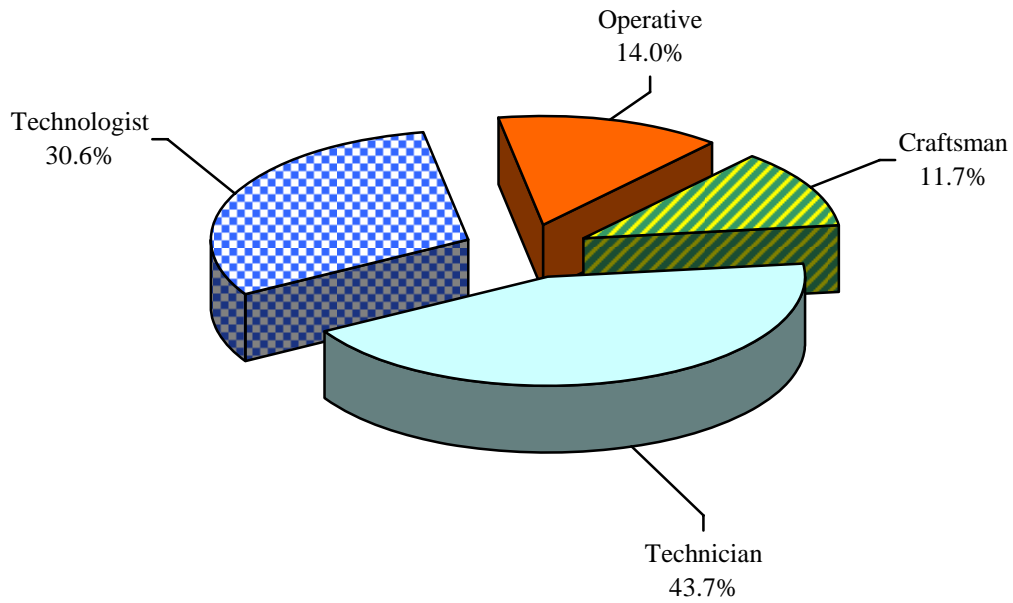
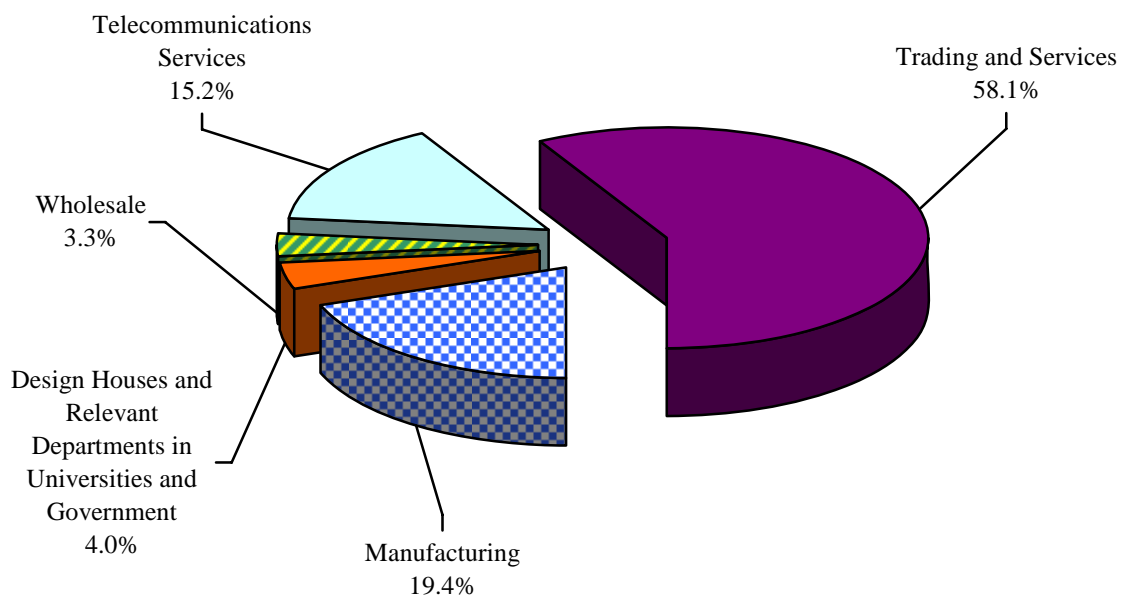


Figure 2.2 : Distribution of Employees by Job Sector



Number of Trainees

2.3 At the time of the survey, there were 482 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	67	14 820	0.5%
Technician	149	21 187	0.7%
Craftsman	251	5 698	4.4%
Operative	15	6 786	0.2%
Total	482	48 491	1.0%

Number of Vacancies at Time of Survey and Forecast Manpower by May 2007

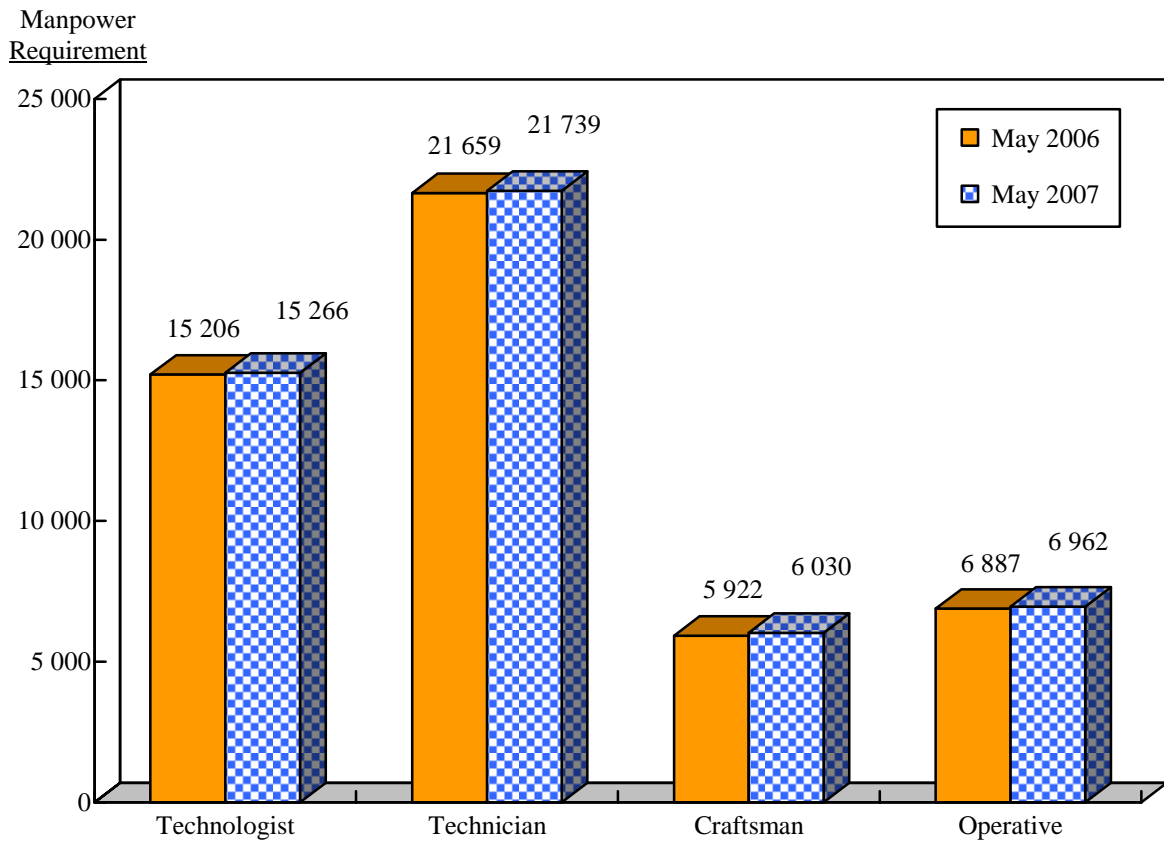
2.4 The total number of job vacancies was 1 183, or 2.4% of the total number employed in the electronics industry at the time of the survey. Employers also forecast that there would be 49 997 employees in the industry by May 2007, which is 1 506 employees more than that in May 2006.

2.5 A comparison of the manpower requirement at the time of survey and the employers' forecast of the number of employees by May 2007 is shown in Table 2.3 and Figure 2.3:

Table 2.3 : Comparison of Manpower Requirement by May 2006 and May 2007

Job Level	At Time of Survey (May 2006)			Forecast Total No. of Employees by May 2007	Forecast Increase/Decrease in Manpower Requirement
	No. of Employees	No. of Vacancies	Total Manpower Requirement		
Technologist	14 820	386	15 206	15 266	+0.4%
Technician	21 187	472	21 659	21 739	+0.4%
Craftsman	5 698	224	5 922	6 030	+1.8%
Operative	6 786	101	6 887	6 962	+1.1%
Total	48 491	1 183	49 674	49 997	+0.7%

Figure 2.3 : Comparison of Manpower Requirement by May 2006 and May 2007



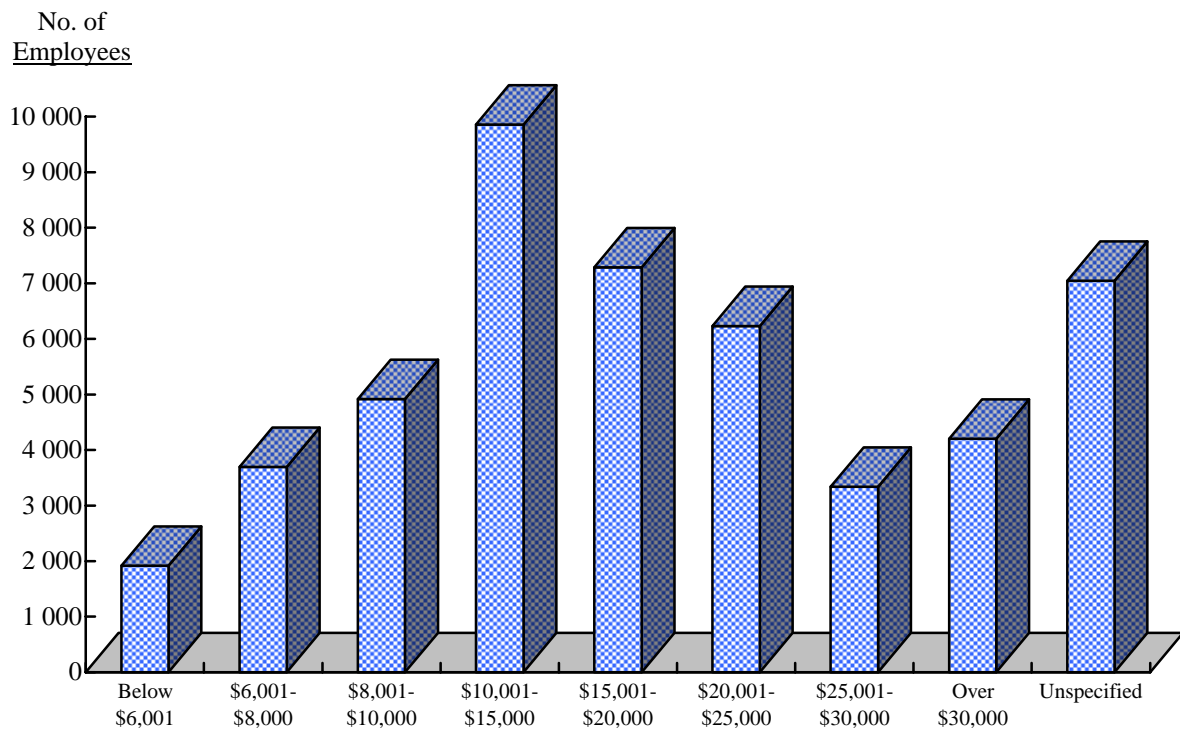
Total Monthly Income Range of Employees

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 \$6,001	\$6,001-\$8,000	\$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	-	-	43	966	2 954	2 473	1 658	3 979	2 747
Technician	1	127	1 833	6 018	4 086	3 759	1 678	222	3 463
Craftsman	1	841	1 710	2 749	245	-	5	-	147
Operative	1 914	2 729	1 329	122	2	-	-	-	690
Total	1 916	3 697	4 915	9 855	7 287	6 232	3 341	4 201	7 047

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	On-the-job Training	2 - 4 years
Technician	Degree/ Higher Diploma	On-the-job Training	2 - 3 years
Craftsman	Craft Certificate	On-the-job Training / Apprenticeship	1 - 3 years

Internal Promotion

2.8 In the twelve months prior to the survey, a total of 439 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	282	14 820	1.9%
From Craftsman to Technician	140	21 187	0.7%
From Other Levels to Craftsman	17	5 698	0.3%
Total	439	41 705	1.1%

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 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	1 514	14 820	10.2%
Technician	636	21 187	3.0%
Craftsman	5	5 698	0.1%
Total	2 155	41 705	5.2%

Statistical Tables

2.10 Detailed manpower statistics analysed by principal job and by sector of the electronics industry are shown in Appendices 1 to 6. The distribution of employers by their monthly income range is shown in Appendix 7.

SECTION III

CONCLUSIONS

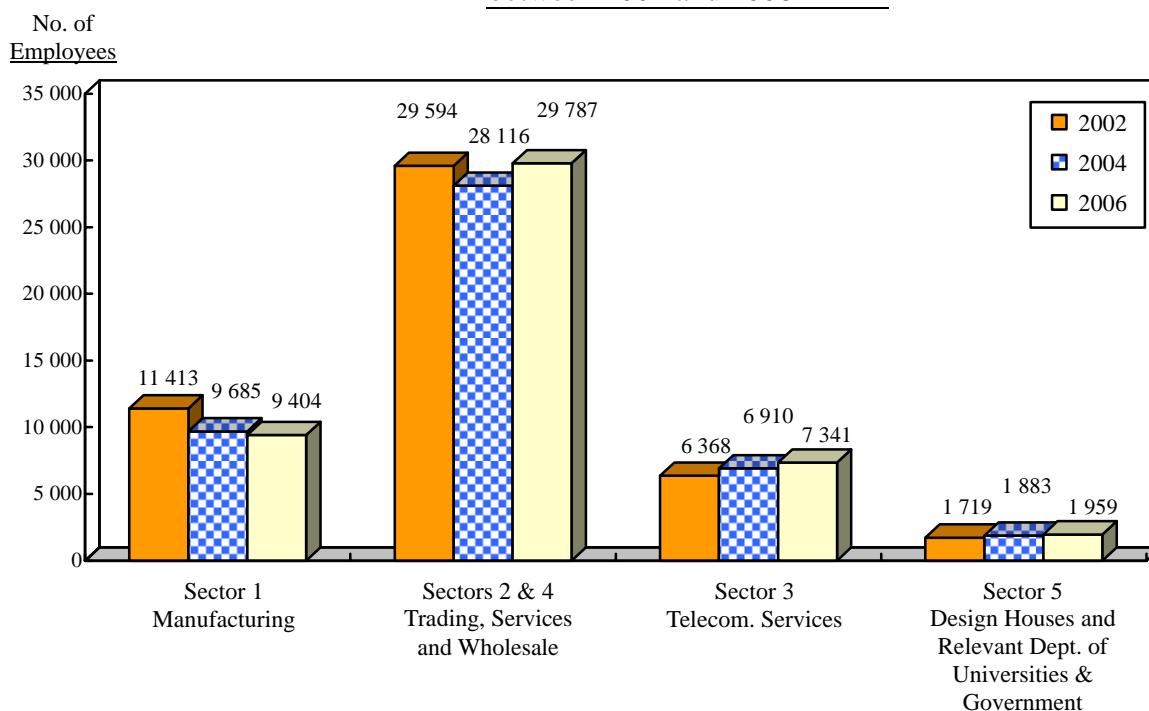
3.1 The Training Board has carefully examined the survey findings and is of the view that they generally reflect the employment situation of the electronics industry at the time of the survey.

Manpower Changes by Sector

3.2 Comparing with the manpower statistics collected in the 2004 survey, the number of employees in principal jobs in the electronics industry had increased from 46 594 to 48 491 in two years, representing an annual increment of 2%. All sectors of the industry, except Manufacturing, had expanded and the annual manpower growth was 3% for the Trading and Services Sector and the Telecommunications Services Sector, 1% for the Wholesale Sector, and 2% for Design Houses and Relevant Departments in Educational Institutions and Government. The manpower in the Manufacturing Sector had decreased by 1.5% per annum.

3.3 Since the survey conducted in 2002, the scope of the manpower survey of the electronics industry has been revised significantly to include more sectors of the industry. Figure 3.1 shows the manpower changes by sector of the industry between 2002 and 2006. Because of the close business and manpower nature of Sector 2 (Trading & Services) and Sector 4 (Wholesale), they are combined for manpower comparison and analysis purpose.

Figure 3.1 : Manpower Changes by Sector
between 2002 and 2006



3.4 The changes in manpower in different sectors of industry over the years are analysed as follows:

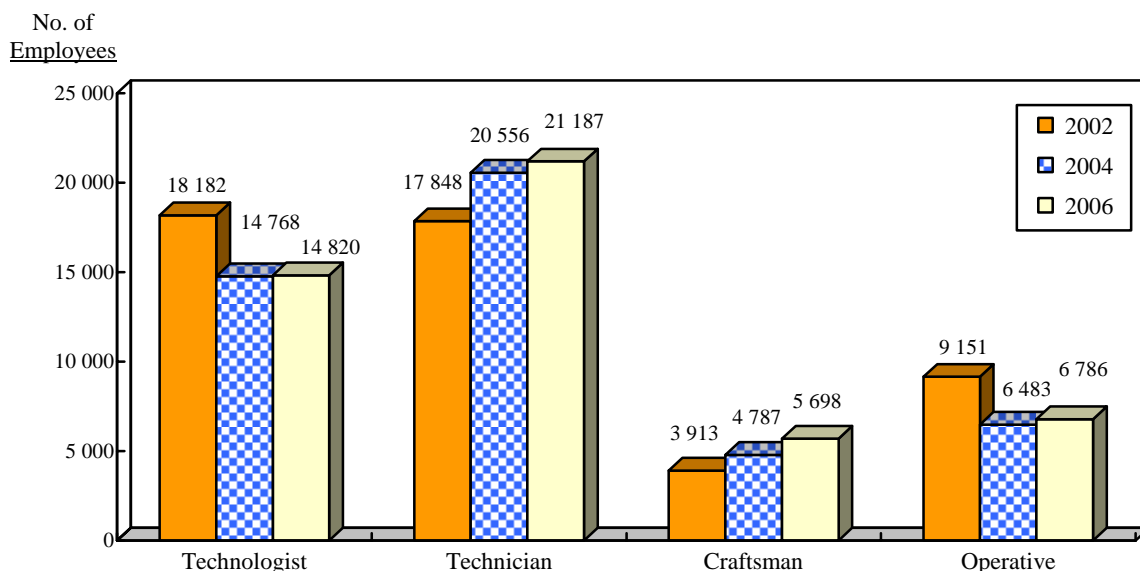
- (i) Most electronics manufacturers have relocated their production processes to the Chinese Mainland and as a result, the manpower in the Manufacturing Sector continued to shrink but the trend has shown signs of abatement. A number of companies also maintain the high value-added processes in Hong Kong.
- (ii) The Trading, Services and Wholesale Sectors, which employed about 61% of the manpower in the electronics industry, had rebounded with the number of employees increased from 28 116 in 2004 to 29 787 in 2006. This growth in manpower was mainly attributable to the worldwide economic recovery and the rapid development in China, which had stimulated the business and consumer activities in the sectors.
- (iii) Due to the continuous development of the sophisticated telecommunications infrastructure in Hong Kong, and the increased integration of telecommunications services between Hong Kong and the Mainland, there was a steady growth in manpower in the Telecommunications Services Sector over the years, particularly in the technician and craftsman levels.
- (iv) The mild increase in manpower in Sector 5 (Design Houses and Relevant Departments in Educational Institutions and Government) was attributable to the expansion of IC design business in the sector. The increase occurred mainly at technologist and technician levels.

Manpower Changes by Job Level

3.5 The survey revealed that there was a growth in manpower in all job levels between 2004 and 2006, as a result of the general upward trend of the electronics industry. The annual increment was 0.2% for technologists, 1.5% for technicians, 9.1% for craftsmen and 2.3% for operatives. The increase in craftsmen occurred mainly in jobs such as Electrician and Cable Jointer/Wireman in the Trading, Services and Wholesale Sectors which employed about 69% of the craftsmen in the industry.

3.6 The manpower changes by job level from 2002 to 2006 is shown in Figure 3.2:

Figure 3.2 : Manpower Changes by Job Level between 2002 and 2006



3.7 The total number of technologists only increased slightly from 14 768 in 2004 to 14 820 in 2006. However, there was a notable growth in the number of Manufacturing/Quality Assurance Engineers at technologist level. The number of these engineers rose from 1 162 in 2004 to 1 605 in 2006, and about 80% of them were employed in the Trading, Services and Wholesale Sectors. More and more Hong Kong companies in the electronics industry have strengthened their quality assurance system with a view to fulfilling the more demanding international market. There is also an increasing number of companies certified as complying with ISO 9000, an international standard for quality management systems, as well as ISO 14000, a standard for environmental management systems, due to the growing concerns for environmental protection.

Business Outlook

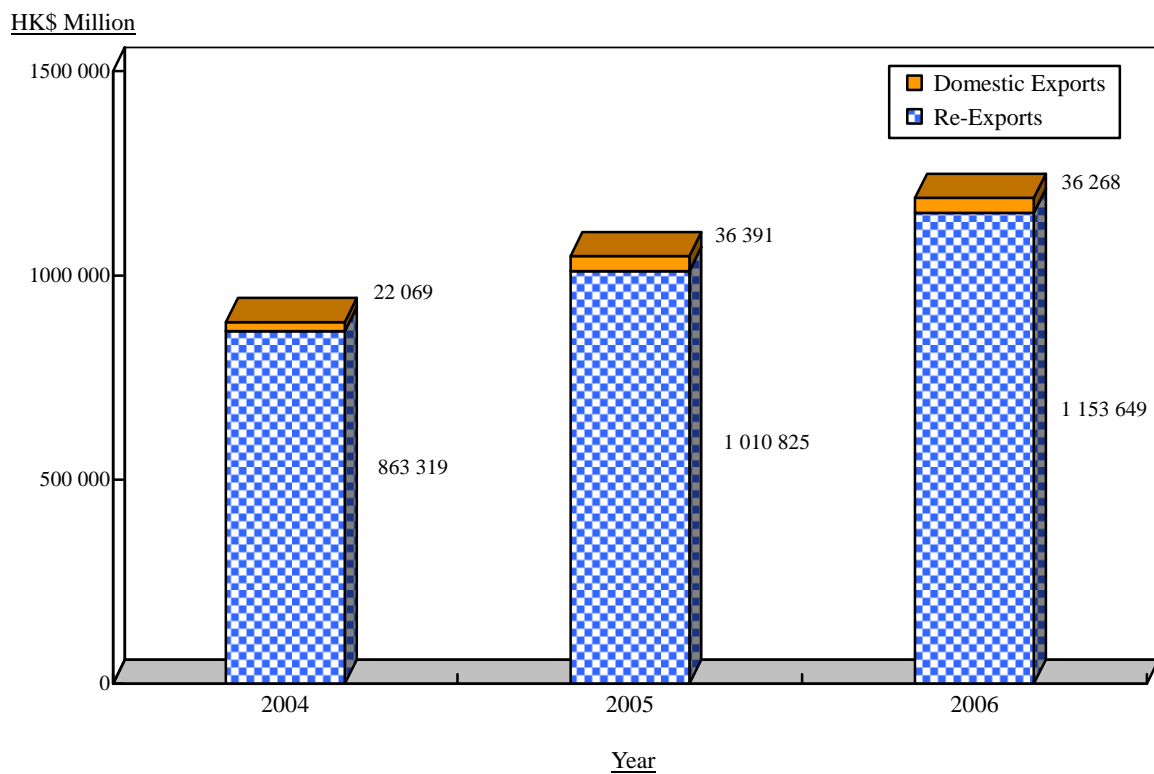
3.8 The electronics industry is the largest export earner of Hong Kong. In 2006, the total exports of electronic products, mainly consumer electronic products, surged by 14% over the previous year to HK\$1,189,917 million, accounting for nearly 50% of Hong Kong's total exports. Details of the export values of electronic products between 2004 and 2006 are shown in Table 3.1 and Figure 3.3.

Table 3.1 : Export Values of Electronic Products

Electronic Products	Value (HK\$ Million)		
	2004	2005	2006
Domestic Exports	22 069	36 391	36 268
Re-Exports	863 319	1 010 825	1 153 649
Total Exports	885 388	1 047 216	1 189 917

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

Figure 3.3 : Export Values of Electronic Products



3.9 Although the Hong Kong electronics industry has enjoyed favourable growth in the external merchandise trade, exporters in the industry are facing intensifying competition from Mainland enterprises in the lower end market, and from the conglomerates in Japan, Korea and Taiwan in the higher end market. There are also a lot of new challenges that manufacturers have to overcome, such as:

- (i) the sharp increase in operating cost, including the appreciation of the Renmibi (RMB), rise in wages, bank interest rates, taxes and duties, and price increase in energy and materials;
- (ii) the tightening of environmental laws in China and other countries, including the two EU directives, the RoHS (Restriction of Hazardous Substances in Electrical and Electronic Equipment) and the WEEE (Waste Electrical and Electronic Equipment);
- (iii) pressure from the Mainland's introduction of new policies and regulations, including Processing Trade Policy, Labour Contract Law, and changes in taxation method.
- (iv) the lack of professionals to support the development of the industry, particularly in IC design.

3.10 Despite the above challenges, it is expected that the external environment which affects the performance of the electronics industry will remain generally positive in the near future. The USA, the largest economy in the world, has demonstrated its internal resilience and maintained moderate growth. Many European economies have shown signs of improvement recently. The China's economy continues to expand at a rapid rate, and Japan has also regained its vitality gradually after a prolonged downturn. The Training Board believes that Hong Kong's economy, and the local electronics industry, will benefit from the above development and grow steadily in the coming years.

Potential Growth Areas

3.11 With the growing popularity and importance of the Internet, information technology and broadband network, it is expected that IT and multi-media products will continue to be the star performers of the market. There will be an increasing demand for computer and related items, including peripherals, parts and accessories, data storage and processing devices, as well as telecommunications products capable of accessing the Internet with multi-media applications. Along with the booming networking market, wireless application will be one of the focal areas and wireless LAN (or WiFi) is now a popular choice for wireless access to the Internet.

3.12 Automobile manufacturing is a fast-growing industry in China and it presents enormous opportunities for the Hong Kong industry. With the increasing vehicle production, there is a growing demand for high-end car audio and related products, in which Hong Kong is quite competitive. There is also an increasing trend of using more electronic components in automobiles, including engine control, instruments, safety/navigation/security devices and related accessories. The auto electronics industry will have great potential to grow in the coming years.

3.13 Digitalisation is the major development trend in today's AV equipment sector. The introduction of digital broadcasting in Hong Kong, the Mainland and other countries will also create a strong demand for digital AV products. The market for multi-media and good quality products such as digital versatile disc (DVD) recorders, digital TVs and LCD TVs is expected to be optimistic.

3.14 IC design is the most important part of the value chain of electronics manufacturing. Over the years, there has been an increasing demand for IC chips from the Asia-Pacific region, particularly the Mainland and Japan, for consumer products such as DVD recorders, mobile phones and PCs. It is expected that the IC design sector will continue to expand in the coming years.

3.15 The medical electronics industry continues to gain momentum in growth, with strong demand and expectations coming from the consumers. Manufacturers and component suppliers in the industry are taking steps to improve both the performance and cost-effectiveness of the increasingly miniaturized, high-precision and portable medical electronic devices. The aging population has also led to a rising need of electronic health-care products worldwide, including the Mainland, which is a potential niche market for electronics manufacturers in Hong Kong.

Further Manpower Demand

3.16 Having considered the latest developments of the industry and the employers' forecast of future manpower requirements, the Training Board believes that in the years ahead there will be an on-going demand for properly trained technologists, technicians and craftsmen to sustain the development of the electronics industry. On the other hand, the demand for operatives (mostly in the Manufacturing Sector) will be limited.

3.17 The Training Board has also estimated the loss of manpower at different job levels due to natural wastage, i.e. workers leaving the electronics industry through retirement, migration to other industries and other causes. The Training Board has decided that the annual wastage rate for technologists, technicians and craftsmen should remain unchanged at 3%.

3.18 The Training Board's forecast of the additional manpower required by the electronics industry to cover both wastage and growth from 2007 to 2010 is given in Table 3.2 below. A breakdown of the training requirements into principal jobs is shown in Appendix 8.

Table 3.2: Annual Manpower Demand in the Electronics Industry
from 2007 to 2010

Job Level	Annual Average Additional Demand for Employees
Technologist	800 - 980
Technician	1 070 - 1 300
Craftsman	450 - 550

3.19 The Training Board will conduct another manpower survey in 2008 to update the manpower statistics and review the training requirements of the electronics industry.

SECTION IV

RECOMMENDATIONS

4.1 Over the past two decades, manufacturers in the Hong Kong's electronics industry have been successful in expanding their production operations into the Pearl River Delta (PRD). With the rapid economic development in China, they have also gradually extended their operations to the Yangtze River Delta (YRD) region, and this trend has accelerated in recent years. Taking into account the above development, the revival of the global and local economies, the effect of China's accession to the World Trade Organisation and the Closer Economic Partnership Arrangement (CEPA), the Training Board is optimistic that the electronics industry will continue to grow steadily in the coming years.

4.2 As one of the world's key exporters in electronic products and the largest export earner of Hong Kong, the local electronics industry is facing a number of new challenges brought about by intensifying regional and global competition as well as depleting resources and environmental concerns. In order to remain competitive, employers in the industry should constantly improve the quality of their products and services, enhance their productivity and management practice. They should also consider investing more in R&D, migrating to higher value-added and IP (Intellectual Property) products, diversifying into other product areas, as well as expanding into the China domestic market and developing their own brand names. Along with the growing concern of environmental protection, it is expected that "Green Manufacturing" will also be a trend in the long-term economy.

4.3 To cope with the above developments, the Training Board recommends that employers in the electronics industry should endeavour to step up their training efforts in order to ensure an adequate supply of properly trained manpower to meet the developing need of the industry. As quality products and services require more added value through well-trained staff, employers should plan and conduct organized training to upgrade and update the knowledge and skills of their employees from time to time. They should also provide long-term career development and training opportunities to help retain staff and reduce staff turnover and wastage rate.

4.4 Employees in the industry, in particular the younger generation, should expand their horizons and tap emerging opportunities in the Chinese Mainland. They should equip themselves with the relevant knowledge and skills for working in both Hong Kong and the Mainland. To be competitive, they should also pursue lifelong learning, particularly participation in programmes and training schemes that will lead to recognized qualifications.

Annual Intake of Trainees

4.5 The Training Board recommends that the industry as a whole should embark on a training programme of a scale as set out in paragraph 3.18. A breakdown of the training requirements into various principal jobs is given at Appendix 8. For manpower planning at the 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 6%, 5.6% and 8.7% respectively of the total number of technologists, technicians and craftsmen presently employed.

4.6 At the time of the survey, there were only 67, 149 and 251 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.

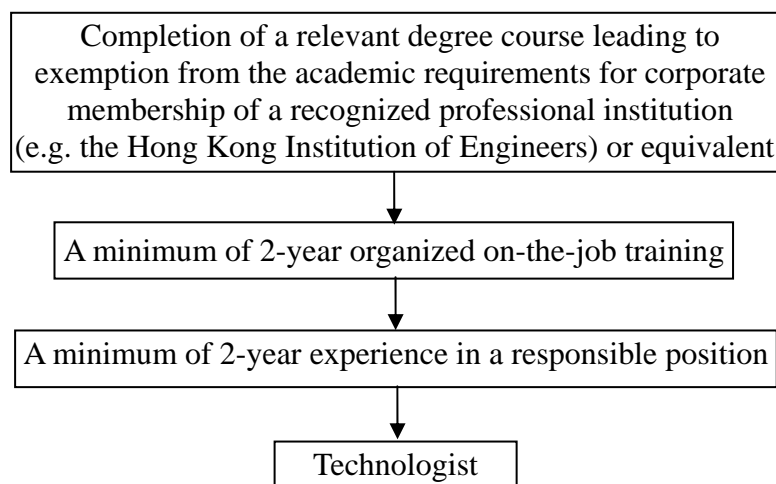
4.7 The recommended training routes for technologists, technicians and craftsmen are outlined in the following paragraphs.

Training of Technologists

4.8 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 judgement, follow progress in his field of technology, apply the latest techniques, supervise and develop his sub-ordinates.

4.9 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



4.10 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 2007/08 and 2008/09:

Table 4.1: Estimated Number of Graduates from
UGC-funded Institutions

Full-time Degree Programme	Estimated Number of Graduates	
	2007/08	2008/09
Electronic/Information & Communications Engineering	682	695
Computer Engineering	269	284
System Engineering & Engineering Management	92	74
Internet & Multimedia Technology	30	27
Automation & Computer-Aided Engineering	37	54
Total	1 110	1 134

4.11 The forecast demand for related technologist level jobs (Electronics Engineer, Manufacturing/QA Engineer, and System Analyst) in the industry is about 682 – 835 annually in the next four years. The supply of graduates in electronic engineering and related disciplines should be adequate to meet the projected demand.

Engineering Graduate Training Scheme (EGTS)

4.12 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. The Technologist Training Unit of the Council offers assistance to employers on all matters concerning the training of trainees under the scheme. The Training Board strongly recommends employers to contact this Unit and to participate in the scheme.

New Technology Training Scheme (NTTS)

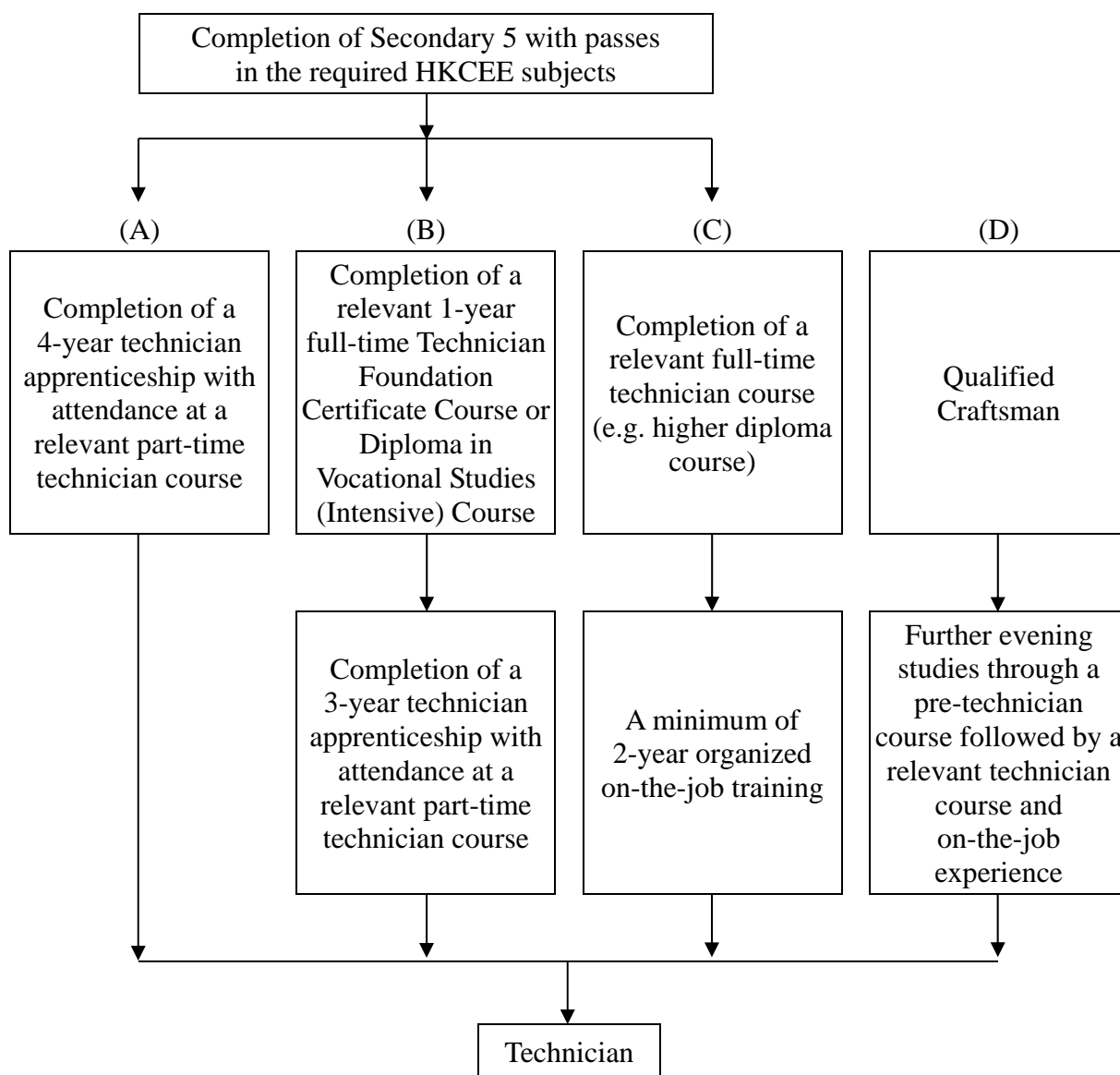
4.13 Since 1992, the Vocational Training Council has been operating the New Technology Training Scheme to provide assistance to companies in Hong Kong that wish to have their staff trained in a technology that would be useful to their business. In the context of the scheme, new technologies include those 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 Council, with the assistance of the Hong Kong Productivity Council and other organizations, also offers assistance to employers in identifying suitable training opportunities. The Training Board urges employers to make good use of the scheme.

Training of Technicians

4.14 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



4.15 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

Full-time Higher Diploma Programme	Estimated No. of Graduates	
	2007/08	2008/09
Electronic & Information/ Communications Engineering	115	150
Electronic Engineering and Business Management	33	-
Computer Engineering	39	55
Lifestyle Electronics	-	47
Internet/Multimedia Technology	168	144
Total	355	396

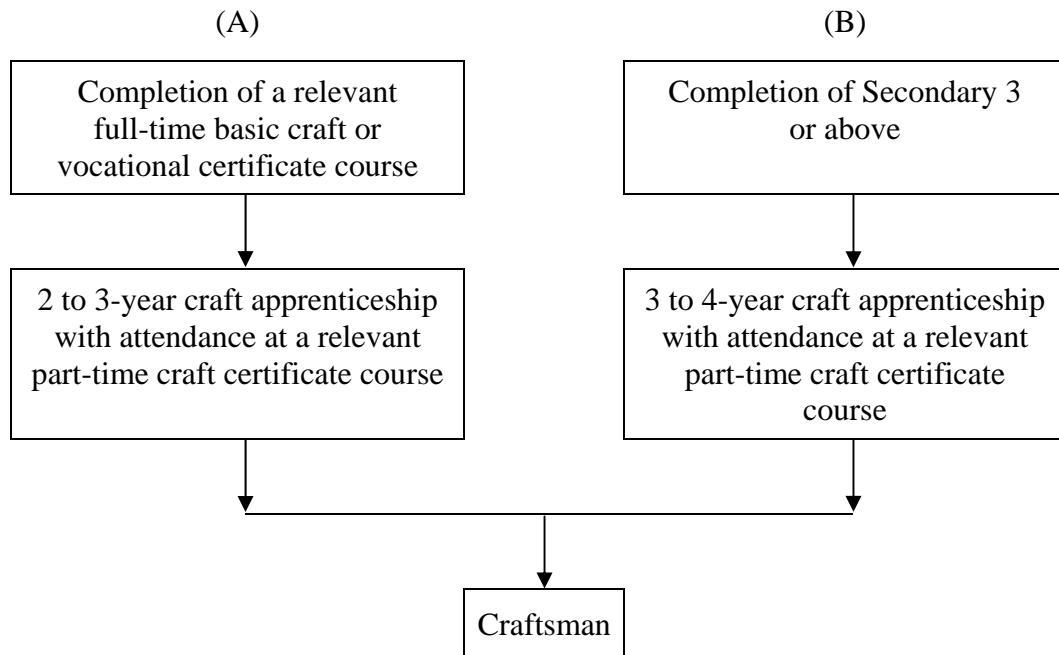
4.16 The VTC's Electronics Industry Training Centre also runs a 1-year full-time Technician Foundation Certificate Course in Electronics and a 1-year full-time Diploma in Vocational Studies-Telecommunication Support (Intensive) Course for Secondary 5 school leavers. The estimated number of graduates from these two courses is about 170 per annum in 2007/08 and 2008/09.

4.17 The forecast demand for related technician level jobs (Electronics Technician, Draughtsman, Manufacturing/QA Technician, Programmer, and Web Developer/Designer) in the industry is 922 – 1 121 annually in the next four years. The total supply of Higher Diploma and Technician Foundation Course graduates is about 550 which is lower than the forecast demand, although some of the technician jobs may be filled by the training of secondary school leavers through apprenticeship and internal promotion of experienced craftsmen. The Training Board recommends that educational and training institutions should consider offering more technician training places in electronic engineering and related disciplines to meet the demand of the industry.

Training of Craftsmen

4.18 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



4.19 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.

4.20 The Electronics Industry Training Centre runs a 3-year Diploma in Vocational Studies (DVS) in Telecommunication Support for Secondary 3 school leavers. Second year graduates of the DVS who do not progress into the final year will be awarded a vocational certificate for joining the craft jobs in the electronics industry. The estimated number of second-year DVS graduates is about 30 per year. As the forecast demand for related craft jobs (Cable Jointer/Wireman, and Electronics Craftsman) in the industry is 370 – 452 annually, the output from the training centre falls short of the projected demand. The Training Board urges employers to provide more training opportunities for the youngsters and the training institutions to consider putting on more training places to enable trainees to acquire basic skills before joining the industry.

Educational and Training Institutions

4.21 The VTC's Hong Kong Institute of Vocational Education (IVE) and Electronics Industry Training Centre, 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

4.22 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 Science Park 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. The park provides an effective research and development environment and support services to facilitate collaboration and synergy among its tenants under four clusters – electronics, information technology and telecommunications, biotechnology and precision engineering. Advanced facilities include an IC Design Centre, an IC Development Support Centre, a Photonics Centre and a Wireless Communication Test Laboratory. 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

4.23 The Vocational Training Council offers free services to help employers organize the statutory apprenticeship scheme 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 the training scheme and recruiting apprentices/trainees.

電子業 2006 年人力調查報告摘要

緒論

是次調查由職業訓練局屬下電子業及電訊業訓練委員會於 2006 年 5 月進行，以蒐集電子業的最新人力資料。

2. 調查採用隨機抽樣法，從政府統計處登記的約 4 100 間機構中，選出 641 間為調查對象。從選出機構蒐集所得的調查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，2006 年 5 月時，本港電子業共僱用 48 491 人擔任電子工程及有關學科的主要職務。業內各類機構各技能等級的僱員分布情況如下：

門類	技能等級				總數
	技師	技術員	技工	操作工	
1. 製造	1 080	2 087	724	5 513	9 404 (19.4%)
2. 貿易及服務	10 519	13 030	3 705	915	28 169 (58.1%)
3. 電訊服務	2 075	4 311	807	148	7 341 (15.2%)
4. 批發	592	634	198	194	1 618 (3.3%)
5. 設計公司、 有關大學院系 及政府部門	554	1 125	264	16	1 959 (4.0%)
總 數	14 820 (30.6%)	21 187 (43.7%)	5 698 (11.7%)	6 786 (14.0%)	48 491 (100%)

4. 調查期間，僱主填覆有 482 名受訓者及 1 183 個空缺，分別佔僱員人數 1.0%及 2.4%。此外，僱主亦預測至 2007 年 5 月時，業內有 49 997 名僱員，較 2006 年 5 月增長 3.1%。

人力轉變

5. 與 2004 年調查所收集的人力統計資料比較，電子業主要職務的僱員人數於兩年內由 46 594 人增加至 48 491 人，年增長率為 2%。業內所有門類機構(製造門類除外)的人力均有所增長：貿易及服務機構以及電訊服務機構的年增幅為 3%，批發機構為 1%，設計公司、教育院校及政府部門為 2%；製造業門類的人力則每年減少 1.5%。

6. 本會認為上述人力轉變基於以下原因：

- (i) 大多數電子製造商已經將其製造工序遷往中國大陸。因此，製造門類的人力持續收縮，但減速已有所放緩。此外，亦有部分公司將高增值工序保留於香港進行。
- (ii) 貿易、服務及批發門類約僱用了電子業 61%的人力，這門類僱員人數由 2004 年的 28 116 人回升至 2006 年 29 787 人。人力增長主要是由於全球經濟復蘇及中國迅速發展，刺激了這類機構的業務及消費活動。
- (iii) 由於香港持續發展複雜的電訊基建項目，同時香港及內地之間的電訊服務日漸整合，促使近年電訊服務門類的人力需求取得穩定增長，尤以技術員及技工職級為甚。
- (iv) 由於集成電路設計業務擴展，設計公司、教育院校及政府有關部門的人力需求溫和增長，主要見於技師及技術員職級。

結論及建議

7. 考慮到電子業的最新發展及僱主對未來人力需求的預測，本會相信於未來數年行業對曾受正規訓練的技師、技術員及技工將有穩定需求，以配合電子業的發展。另一方面，操作工的需求(大部分來自製造門類)將會有限。

8. 本會亦就電子業各職級人力的自然流失情況作出估計，自然流失指因退休、轉業及其他原因離開電子業。本會預期技師、技術員及技工的每年流失率仍保持於 3%。

9. 本會推算 2007 至 2010 年間，電子業為應付增長及填補流失人手，每年需平均增聘的人手如下：

職級	平均每年需增加的僱員人數
技師級	800 – 980
技術員級	1 070 – 1 300
技工級	450 – 550

10. 本會促請僱主加強員工培訓，以保持電子業的發展勢頭，因為優質產品及服務均需要訓練有素的員工為之增值。僱主亦應善加利用教育及培訓機構的設施，資助僱員報讀有關課程。本會建議僱主聯絡職業訓練局設立有關的人力培訓計劃，包括學徒訓練計劃及新科技培訓計劃。

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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，並向職訓局提出建議，以發展專業教育及培訓設施，應付有關需要。

人力調查

1.3 本會於 2006 年 5 月，為電子業進行人力調查，收集最新資料。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 9 月完成，並於 2006 年 11 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 2007 年 5 月時的僱員總數；
- (v) 僱員的每月平均收入；
- (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十二個月內，獲得晉升或派往香港以外地區工作超過六個月的技師、技術員及技工人數。

調查範圍

1.6 是次調查包括以下五類公司、政府有關部門及教育機構：

第一類：製造

下列產品的製造商：

- (i) 計算機及計算設備(HSIC 3822)；
- (ii) 晶體管收音機(HSIC 3831)；
- (iii) 電視機及通訊設備(HSIC 3832)；
- (iv) 音響重播及錄音器材(HSIC 3833)；
- (v) 唱機、唱片及錄音帶(HSIC 3834)；
- (vi) 電子零件及元件(HSIC 3840)；
- (vii) 電子玩具(HSIC 3852)；
- (viii) 工業用電子器材(HSIC 3868)；
- (ix) 其他電子產品(HSIC 3873)。

第二類：貿易及服務

- (a) 防盜警鐘及內部通訊系統裝置公司(HSIC 5516),
- (b) 下列產品的進出口貿易公司：
 - (i) 科學及專業儀器(HSIC 631805)*；
 - (ii) 電話系統(HSIC 631821)*；
 - (iii) 電訊服務(HSIC 631822)*；
 - (iv) 電器(HSIC 631823)*；
 - (v) 電腦、電腦週邊設施及套裝軟件(HSIC 631824)*；
 - (vi) 辦公室器材(HSIC 631825)*；
- (c) 資料處理及製表服務公司(HSIC 8333)*；
- (d) (a)至(c)以外的其他電子工程服務公司。

第三類：電訊服務

- (a) 有線固定通訊網絡服務公司(HSIC 732101)；
- (b) 其他固定通訊網絡服務公司(HSIC 732199)；
- (c) 傳呼服務公司(HSIC 7322)；
- (d) 流動通訊服務(HSIC 732901)；
- (e) 互聯網接駁服務公司(HSIC 732902)；
- (f) 衛星通訊服務公司(HSIC 732903)；
- (g) 電台、電視台及錄製室(HSIC 9411)。

第四類：批發

下列批發公司：

- (a) 電話系統(HSIC 611821)；
- (b) 電訊設備（不包括電話系統）(HSIC 611822)；
- (c) 電器（不包括機械、辦公室及電訊器材）(HSIC 611823)；
- (d) 電腦、電腦週邊設施及套裝軟件(HSIC 611824)；
- (e) 辦公室器材（不包括電腦、傢具及固定裝置）(HSIC 611825)。

第五類：設計公司、有關大學院系及政府部門

- (a) 電子設計公司；
- (b) 有關教育機構；
- (c) 有關政府部門。

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。

1.7 調查前，政府統計處錄得香港電子業五大門類約共有 4 100 間機構。鑑於資源有限，本會採用分層隨機抽樣方法，選出共 641 間機構為調查對象。調查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 C)、附註(附件 D)及主要職務工作說明(附件 E) 寄予選出的 641 間機構。本會亦透過本地報章，以及向有關工商組織宣傳，促請僱主合作。

1.9 實地調查期間，政府統計處派員到全部 641 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

1.10 641 間選出的機構中，434 間填覆調查表，34 間拒絕作答，而其餘 173 間，則已搬遷、結束營業、未能聯絡，或已改變業務性質。是次調查的實際填覆率約 92.7%。

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。他們的理由是業務繁忙和不願披露機構的機密資料。

調查報告

1.12 本會於跟進實地調查及處理數據後，於 2007 年 2 月編製統計報告，呈列調查蒐集所得重要人力數據。統計報告其後上載職訓局網站，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，以及針對這些需求所提出的建議。報告書內，「僱員」、「從業員」及「人力」均指調查期間所列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，2006年5月時，本港電子業共僱用126 406人，其中48 491人擔任電子工程及有關學科的主要職務。下列各段只呈列從事主要職務的人力統計數字。

各類機構各技能等級的僱員分布情況

2.2 電子業各類機構各技能等級的僱員分布情況見表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
	技師	技術員	技工	操作工	
1. 製造	1 080	2 087	724	5 513	9 404 (19.4%)
2. 貿易及服務	10 519	13 030	3 705	915	28 169 (58.1%)
3. 電訊服務	2 075	4 311	807	148	7 341 (15.2%)
4. 批發	592	634	198	194	1 618 (3.3%)
5. 設計公司、 有關大學院系 及政府部門	554	1 125	264	16	1 959 (4.0%)
總 數	14 820 (30.6%)	21 187 (43.7%)	5 698 (11.7%)	6 786 (14.0%)	48 491 (100%)

圖 2.1 : 各技能等級的僱員分布情況

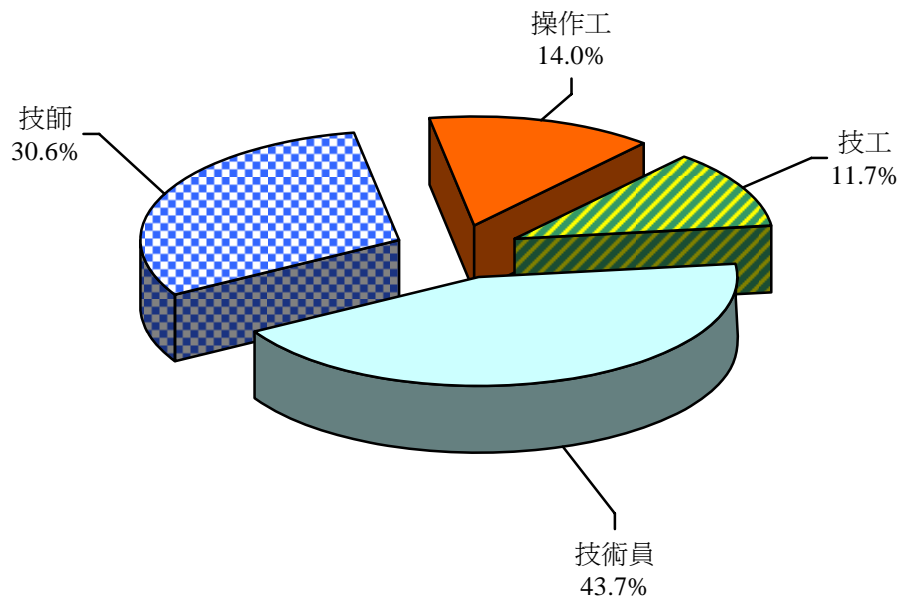
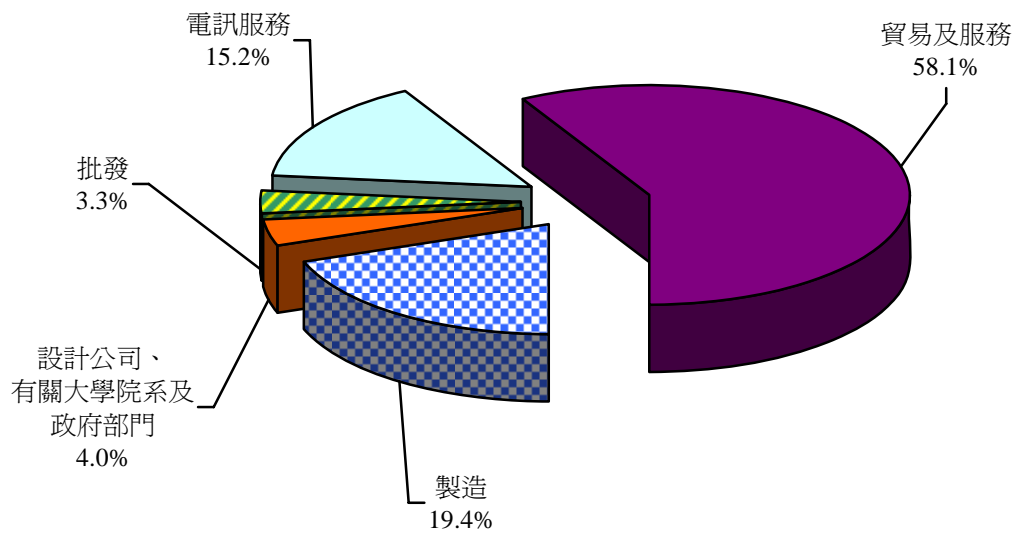


圖 2.2 : 各類機構的僱員分布情況



受訓者人數

2.3 調查期間，業內共有受訓者 482 人，各技能等級的受訓者分布情況如下：

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)	僱員總數(b)	百分率 $\frac{(a)}{(b)} \times 100\%$
技師	67	14 820	0.5%
技術員	149	21 187	0.7%
技工	251	5 698	4.4%
操作工	15	6 786	0.2%
總數	482	48 491	1.0%

調查期間空缺數目及預測至 2007 年 5 月時的人力

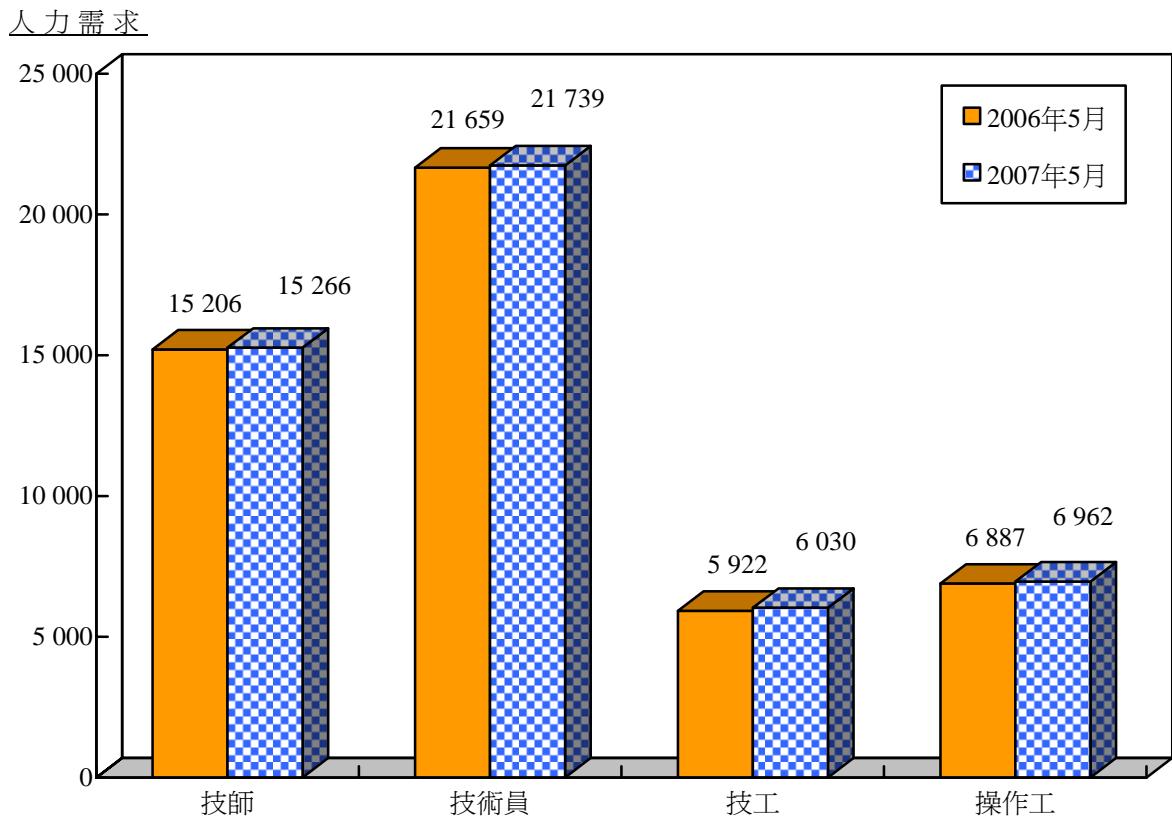
2.4 調查期間，電子業的空缺數目有 1 183 個，佔僱員總數的 2.4%。僱主亦預測至 2007 年 5 月時共有 49 997 名僱員，較 2006 年 5 月增加 1 506 名。

2.5 調查期間的人力需求對比僱主預測至 2007 年 5 月的僱員人數，比較數字見表 2.3 及圖 2.3：

表 2.3：2006 年 5 月與 2007 年 5 月的人力需求比較

技能等級	調查期間 (2006 年 5 月)			預測至 2007 年 5 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	14 820	386	15 206	15 266	+0.4%
技術員	21 187	472	21 659	21 739	+0.4%
技工	5 698	224	5 922	6 030	+1.8%
操作工	6 786	101	6 887	6 962	+1.1%
總數	48 491	1 183	49 674	49 997	+0.7%

圖 2.3 : 2006 年 5 月與 2007 年 5 月
人力需求的比較



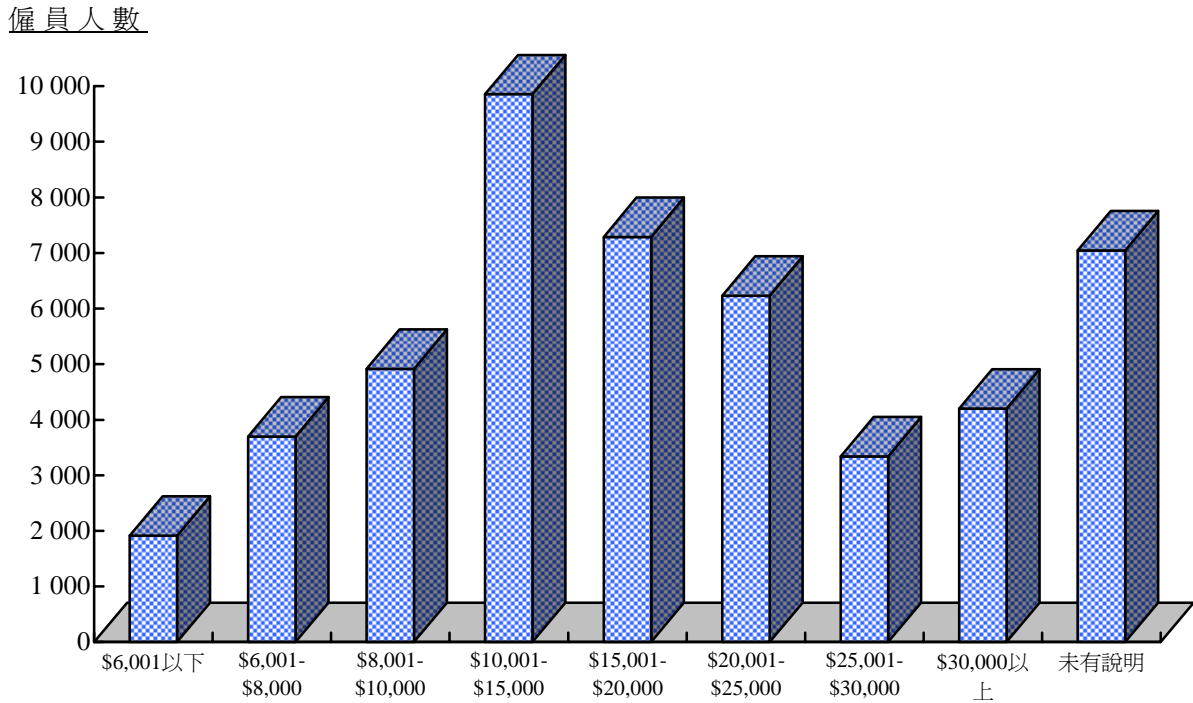
僱員每月總收入幅度

2.6 電子業內僱員每月總收入幅度的分布情況，見表 2.4 及圖 2.4：

表 2.4 : 僱員每月總收入幅度的
分布情況

技能等級	\$6,001 以下	\$6,001-\$8,000	\$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	-	-	43	966	2 954	2 473	1 658	3 979	2 747
技術員	1	127	1 833	6 018	4 086	3 759	1 678	222	3 463
技工	1	841	1 710	2 749	245	-	5	-	147
操作工	1 914	2 729	1 329	122	2	-	-	-	690
總數	1 916	3 697	4 915	9 855	7 287	6 232	3 341	4 201	7 047

圖 2.4： 僱員每月總收入幅度的分布情況



僱員宜有的教育程度、訓練模式及訓練期

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、訓練模式及訓練期如下：

表 2.5： 僱員宜有的教育程度、訓練模式及訓練期

技能等級	宜有教育程度	宜有訓練模式	宜有訓練期
技師	學士學位	在職訓練	2 至 4 年
技術員	學士學位／高級文憑	在職訓練	2 至 3 年
技工	技工證書	在職訓練／學徒訓練	1 至 3 年

內部晉升情況

2.8 調查前十二個月內，業內共有 439 名僱員獲內部晉升，擔任較高技能等級的工作，各技能等級的分布情況如下：

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	282	14 820	1.9%
由技工 晉升至技術員	140	21 187	0.7%
由其他技能等級 晉升至技工	17	5 698	0.3%
總 數	439	41 705	1.1%

派駐香港以外地區工作的僱員

2.9 僱主填覆，調查前的十二個月內，曾在香港以外地區工作超過六個月的僱員人數如下：

表 2.7： 曾在香港以外地區工作的僱員人數

技能等級	曾在香港 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	1 514	14 820	10.2%
技術員	636	21 187	3.0%
技工	5	5 698	0.1%
總數	2 155	41 705	5.2%

統計表

2.10 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 6。僱員的每月收入幅度分布情況見附錄 7。

第三章

結 論

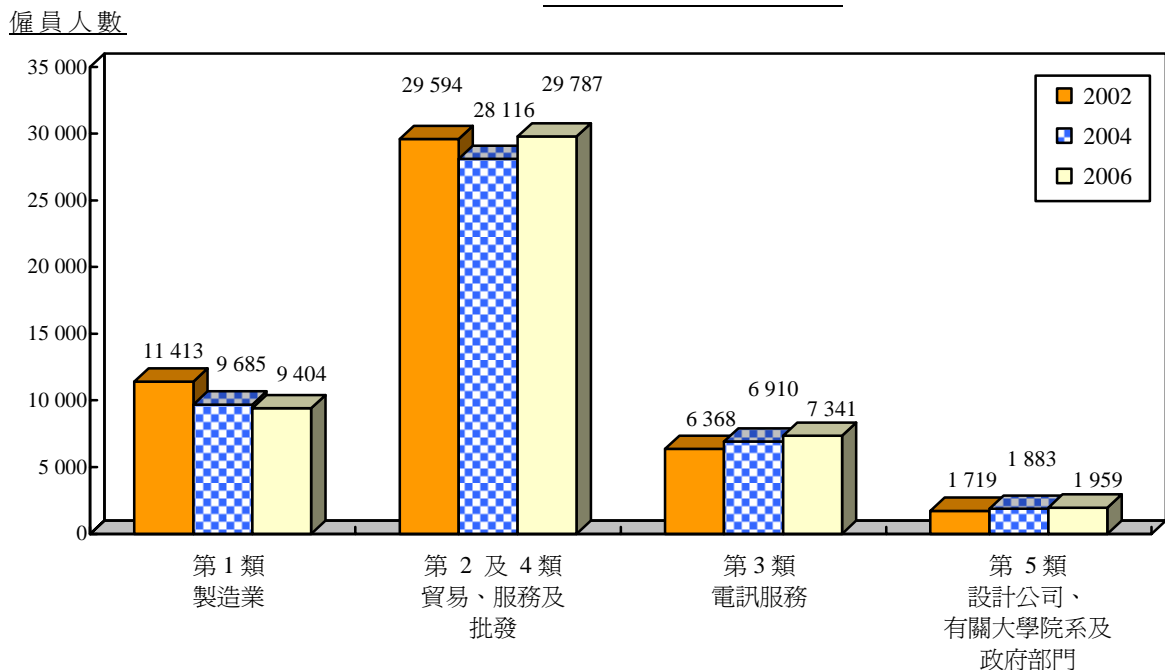
3.1 本會詳細分析調查結果後，認為有關資料大致能反映調查期間電子業的就業情況。

各類機構的人力情況

3.2 與 2004 年調查所收集的人力統計資料比較，電子業主要職務的僱員人數於兩年內由 46 594 人增加至 48 491 人，年增長率為 2%。業內所有門類機構(製造門類除外)的人力均有所增長：貿易及服務機構以及電訊服務機構的年增幅為 3%，批發機構為 1%，設計公司、教育院校及政府部門為 2%；製造業門類的人力則每年減少 1.5%。

3.3 自 2002 年進行調查後，電子業人力調查所涵蓋的範圍已作出大幅修訂，以涵蓋業內更多類型的機構。圖 3.1 展示於 2002 至 2006 年期間，電子業內各類機構的人力情況。由於第 2 類機構(貿易及服務)及第 4 類機構(批發)的業務和人力需求性質接近，本會決定將兩類機構的人力需求合併進行比較和分析。

圖 3.1： 2002 至 2006 年
各類機構的人力
情況



3.4 於過往年度內電子業各類機構的人力需求情況分析如下：

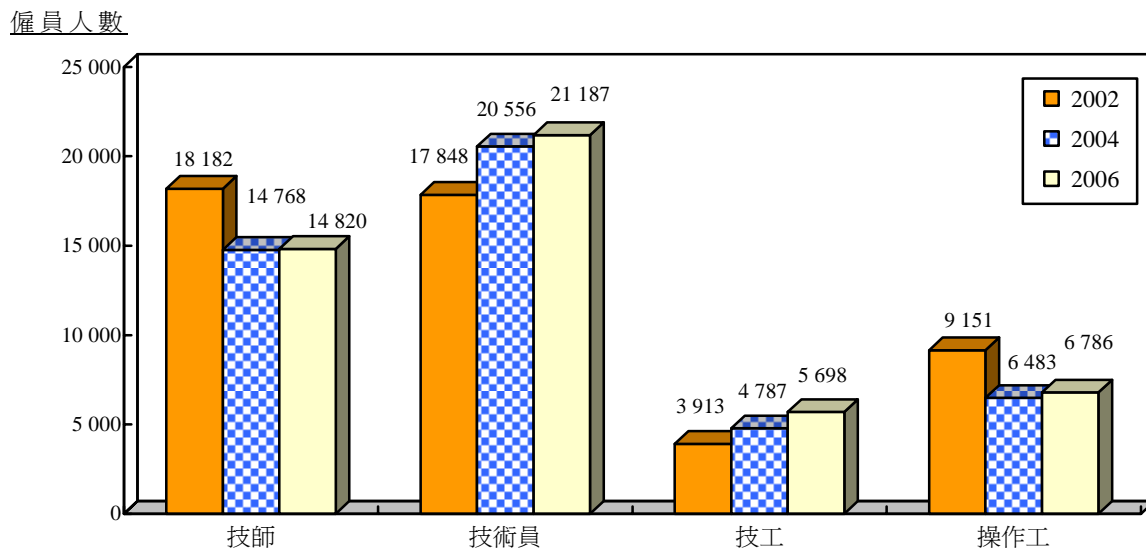
- (i) 大多數電子製造商已經將其製造工序遷往中國大陸。因此，製造門類的人力持續收縮，但減速已有所放緩。此外，亦有部分公司將高增值工序保留於香港進行。
- (ii) 貿易、服務及批發門類約僱用了電子業 61% 的人力，這門類僱員人數由 2004 年的 28 116 人回升至 2006 年 29 787 人。人力增長主要是由於全球經濟復蘇及中國迅速發展，刺激了這類機構的業務及消費活動。
- (iii) 由於香港持續發展複雜的電訊基建項目，同時香港及內地之間的電訊服務日漸整合，促使近年電訊服務門類的人力需求取得穩定增長，尤以技術員及技工職級為甚。
- (iv) 由於集成電路設計業務擴展，第 5 類機構(設計公司、教育院校及政府有關部門)的人力需求溫和增長，主要見於技師及技術員職級。

各職級的人力情況

3.5 調查反映 2004 至 2006 年期間所有職級的人力需求均有增長，原因是電子業發展整體向好。技師人力的年度增幅為 0.2%、技術員為 1.5%、技工為 9.1%、操作工為 2.3%。技工的需求增加主要由於貿易、服務及批發門類增聘電氣技工及電纜接駁技工／駁線技工，該類機構約聘請 69% 的業內技工。

3.6 2002 至 2006 年各職級的人力情況載於圖 3.2:

圖 3.2 : 2002 至 2006 年
各職級的人力情況



3.7 技師的總人數只輕微增長，由 2004 年的 14 768 人增加至 2006 年 14 820 人；然而，當中製造／品質保證工程師的人數有顯著增長，由 2004 年的 1 162 人上升至 2006 年的 1 605 人，其中 80% 受僱於貿易、服務及批發門類。愈來愈多從事電子業的香港公司已加強他們的質素保證系統，以滿足要求日高的國際市場，並取得 ISO 9000 這項有關品質管理系統的國際認證。此外，由於大眾對環境保護日益關注，市場上亦有更多公司符合 ISO 14000(有關環境管理系統)的標準。

業務前景

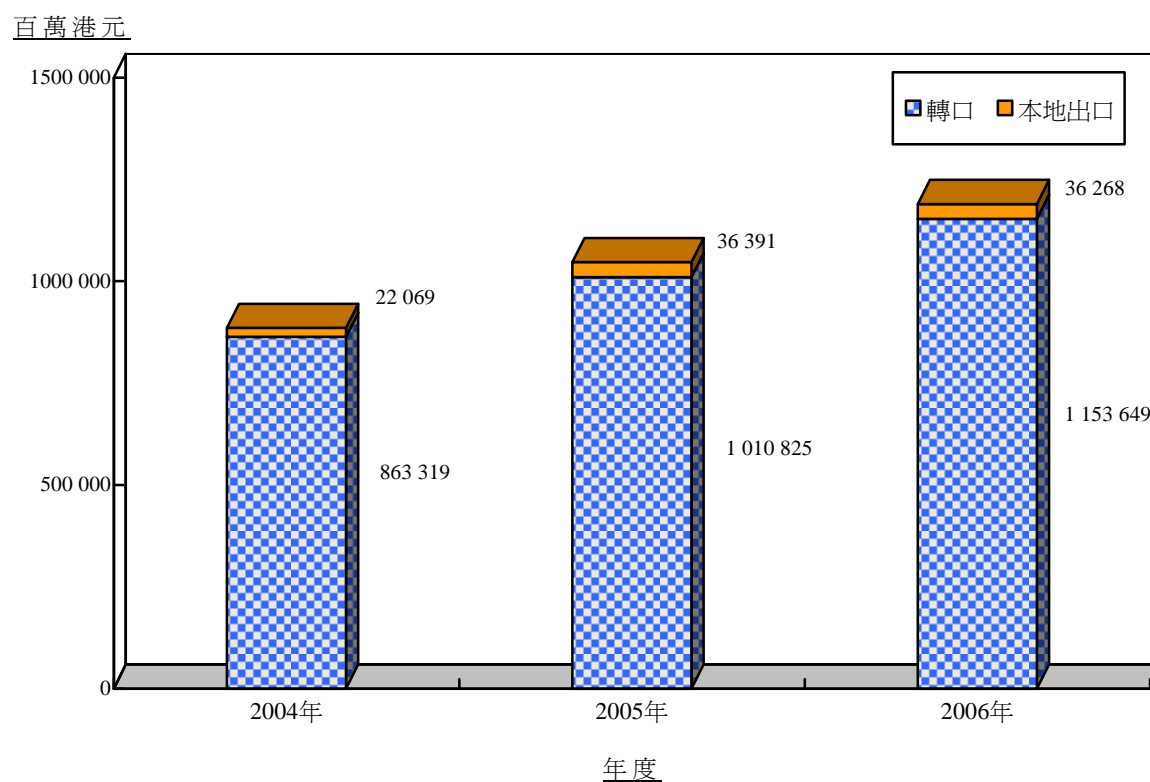
3.8 電子業是香港最大的商品出口行業。於 2006 年，電子產品的總出口量，主要是電子消費產品，比前一年急升 14% 至 11,899.17 億港元，佔全港總出口量接近 50%。2004 至 2006 年電子產品出口價值的詳情載於表 3.1 及圖 3.3：

表 3.1： 電子產品出口
價值

電子產品	價值 (百萬港元)		
	2004 年	2005 年	2006 年
本地出口	22 069	36 391	36 268
轉口	863 319	1 010 825	1 153 649
總出口	885 388	1 047 216	1 189 917

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
價值



3.9 雖然香港電子業出口額取得可觀增長，然而業內的出口商正面對中國企業(較低檔次市場)，以及日本、韓國及台灣的大型企業(較高檔次市場)愈趨激烈的競爭。另一方面，製造商亦要克服很多新挑戰，例如：

- (i) 營運成本急劇上升，當中包括人民幣(RMB)升值，薪金、銀行利率、稅項的增加，以及能源及材料價格上漲；
- (ii) 中國及其他國家收緊環境法規，包括兩項歐盟指令：「限制電器及電子設備使用有害物質指令」(RoHS) 及「廢棄電器及電子設備指令」(WEEE)；
- (iii) 來自大陸推行新政策及法規的壓力，包括加工貿易政策、勞工合同法及稅收方式改變；
- (iv) 缺乏專才以支持電子業的發展，特別是集成電路設計方面。

3.10 儘管面對上述挑戰，但預期影響電子業表現的外在環境於不久將來仍普遍向好。身為全球經濟大國的美國已展現其內部經濟的活力，並維持溫和增長。不少歐洲國家近期亦呈現經濟好轉的跡象。中國經濟繼續急速發展，而日本最終亦從漫長的經濟衰退中慢慢復蘇。本會相信本港的經濟及本地電子業將因上述發展而受惠，並於未來數年穩步增長。

有增長潛力的領域

3.11 隨著互聯網、資訊科技及寬頻網絡日益普及並更為重要，預期資訊科技及多媒體產品將繼續成為市場上的暢銷產品。市場對電腦及相關項目包括週邊設備、零部件及配件、數據儲存裝置及處理裝置，以及可連接互聯網及具多媒體應用的電訊產品的需求將不斷上升。除了網絡市場一片景氣外，無線應用將會是另一個焦點領域，無線網絡(或 WiFi)現已成為大眾樂於使用的以無線方式連接互聯網的選擇。

3.12 中國的汽車製造業迅速增長，這預示香港電子業將有無限商機。隨著汽車產量增加，高檔次汽車音響及相關產品的需求亦相應增加，而香港在這方面具備相當的競爭力。此外，汽車使用更多電子裝置，包括發動機控制、儀器、安全/導航/防盜裝置及相關配件亦有增加的趨勢。預期汽車電子業於未來數年將有相當大的增長潛力。

3.13 數碼化是現時影音設備行業的主要發展趨勢。香港、內地及其他國家引入數碼廣播亦將造就對數碼影音產品的強勁需求。數碼影音光碟(DVD)錄影機、數碼電視及液晶顯示屏(LCD)電視機等多媒體及高質素產品的市場預期樂觀。

3.14 集成電路設計是電子製造業價值鏈中最重要的一環。多年來，亞太區(特別是內地及日本)對製造消費產品如 DVD 錄影機、手提電話及個人電腦所需使用的集成電路晶片的需求不斷增加。預期集成電路設計行業於未來數年將繼續增長。

3.15 由於消費者對醫療電子產品需求殷切，並期望可購得優質產品，醫療電子業繼續維持增長動力。該行業的製造商及零件供應商力求改善愈趨微型化、精確及可攜式醫療電子儀器的性能及成本效益。人口老化亦令全球(包括內地)對電子保健產品的需求增加，這對香港的電子製造商而言無疑是個具潛力的市場。

未來人力需求

3.16 考慮到電子業的最新發展及僱主對未來人力需求的預測，本會相信於未來數年行業對曾受正規訓練的技師、技術員及技工將有穩定需求，以配合電子業的發展。另一方面，操作工的需求(大部分來自製造門類)將會有限。

3.17 本會亦就電子業各職級人力的自然流失情況作出估計，自然流失指因退休、轉業及其他原因離開電子業。本會預期技師、技術員及技工的每年流失率仍保持於 3%。

3.18 本會推算 2007 至 2010 年間，電子業為應付增長及填補流失人手，每年需平均增聘的人手，詳情見以下表 3.2。附錄 8 列載了按主要職務劃分的培訓需求。

表 3.2: 2007 至 2010 年
電子業每年的
人力需求

職級	平均每年需增加的僱員人數
技師級	800 – 980
技術員級	1 070 – 1 300
技工級	450 – 550

3.19 本會將於 2008 年進行另一次人力調查，以更新人力統計資料及檢討電子業的訓練需求。

第四章

建 議

4.1 過去二十年來，香港電子業廠商成功把生產業務擴展至珠江三角洲（珠三角）。隨著中國經濟急速發展，電子廠商還逐漸把業務伸延至長江三角洲（長三角）地區，而此趨勢於近年更有加快的跡象。考慮到以上發展及全球和本港經濟復蘇等因素，以及中國加入世界貿易組織並與香港簽訂《更緊密經貿關係安排》（CEPA）的影響，本會對電子業的發展感到樂觀，預期該行業於未來幾年將繼續穩定發展。

4.2 作為國際主要電子產品出口地區之一，兼屬本港出口商品中貨值最高的行業，本港的電子業正面對一連串因地區及國際競爭日益加劇、資源不斷減少，以及各界對環境問題的關注而帶來的新挑戰。為保持競爭力，業內僱主應不斷提升產品及服務質素，並加強生產力及改善管理方法，亦應考慮投入更多資金加強研發、轉而生產更高增值及知識產權產品、開拓更多元化的產品範疇、擴展至中國國內市場，並開發自主品牌。而隨著各界愈來愈關注環保問題，預期「綠色工業」亦將成為長遠經濟發展的趨勢。

4.3 因應上述發展，本會建議電子業僱主加強員工培訓，以確保有足夠會受適當訓練的人手以應付業內的殷切需求。因為優質產品及服務均需要訓練有素的員工為之增值，僱主應不時籌辦有系統的培訓計劃，以提升及更新僱員的知識及技術。僱主同時亦應提供長遠的事業發展及培訓機會，以幫助挽留人才並減低員工流失率。

4.4 電子業僱員，特別是當中的年輕一代，應該擴闊視野，把握中國大陸不斷湧現的工作機會，並學習所需知識及技能，以適應於中港兩地工作。為了提升競爭力，他們更要終身學習，特別是參與各類課程及培訓計劃，以取得認可資格。

每年受訓者人數

4.5 本會建議電子業整體推行規模如第 3.18 段所述的培訓計劃。各主要職務的培訓需求載於附錄 8。個別僱主為其機構策劃人力時，請注意每年的平均受訓者人數，分別約佔現有技師、技術員及技工總人數的 6%、5.6% 及 8.7%。

4.6 調查期間，電子業只有技師級受訓者 67 人、技術員級受訓者 149 人，以及技工級受訓者 251 人。一般而言，技師訓練需時兩至四年，技術員及技工訓練需時三至四年；因此，目前由僱主提供的培訓，明顯不足以應付業內需求。

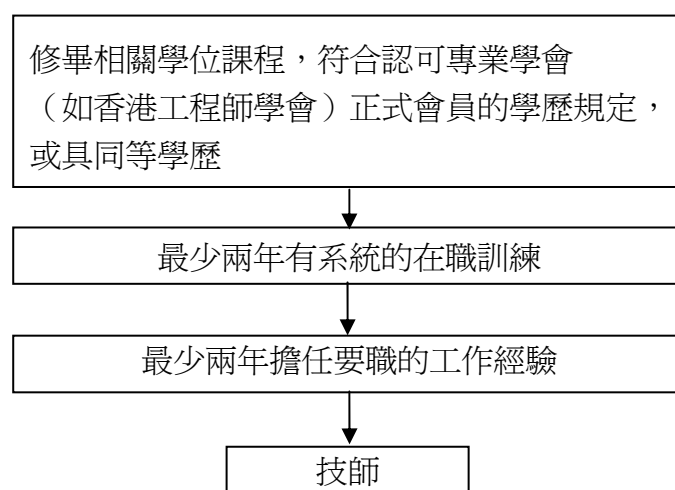
4.7 技師、技術員及技工的建議培訓途徑將於下文載述。

技師訓練

4.8 技師須具有相當於專業學會正式會員所需的資歷和經驗，能夠分析和解決各種技術問題。此外，技師亦須負責發展及運用工程原理、具創見和判斷力、緊貼行業的科技發展、運用最新技術，以及督導和培訓下屬。

4.9 技師在改善管理和革新科技方面，擔當重要角色。本會建議僱主採用以下途徑訓練技師：

圖 4.1： 技師訓練



4.10 若干由大學教育資助委員會（教資會）資助的本地院校，均辦有各類電子工程及相關學科的學位課程。下表載列於 2007/08 及 2008/09 年度這些全日制工程科學位課程的預計畢業生人數：

表 4.1：預計教資會資助院校畢業生人數

全日制學位課程	預計畢業生人數	
	2007/08	2008/09
電子／資訊及通訊工程	682	695
電腦工程	269	284
系統工程與工程管理	92	74
互聯網及多媒體科技	30	27
自動化與電腦輔助工程	37	54
總數	1 110	1 134

4.11 預測未來四年業內對相關技師級職務（電子工程師、製造／品質保證工程師以及系統分析員）的需求為每年 682 至 835 人。上述電子工程及相關學科的畢業生數量應足以應付預計需求。

工科畢業生訓練計劃

4.12 職業訓練局屬下技師訓練委員會現正推行工科畢業生訓練計劃，為工科畢業生提供更多有系統的工業實務訓練機會。有關訓練屬資助性質，為期十八個月，程度符合香港工程師學會正式會員資格的要求。受訓畢業生可透過僱主獲得津貼，作為薪金的一部分，而訓練進度則由技師訓練委員會負責監察。此外，職訓局的技師訓練組亦會就一切與是項訓練計劃有關的事宜，向僱主提供協助。本會籲請僱主聯絡該組，參與是項計劃。

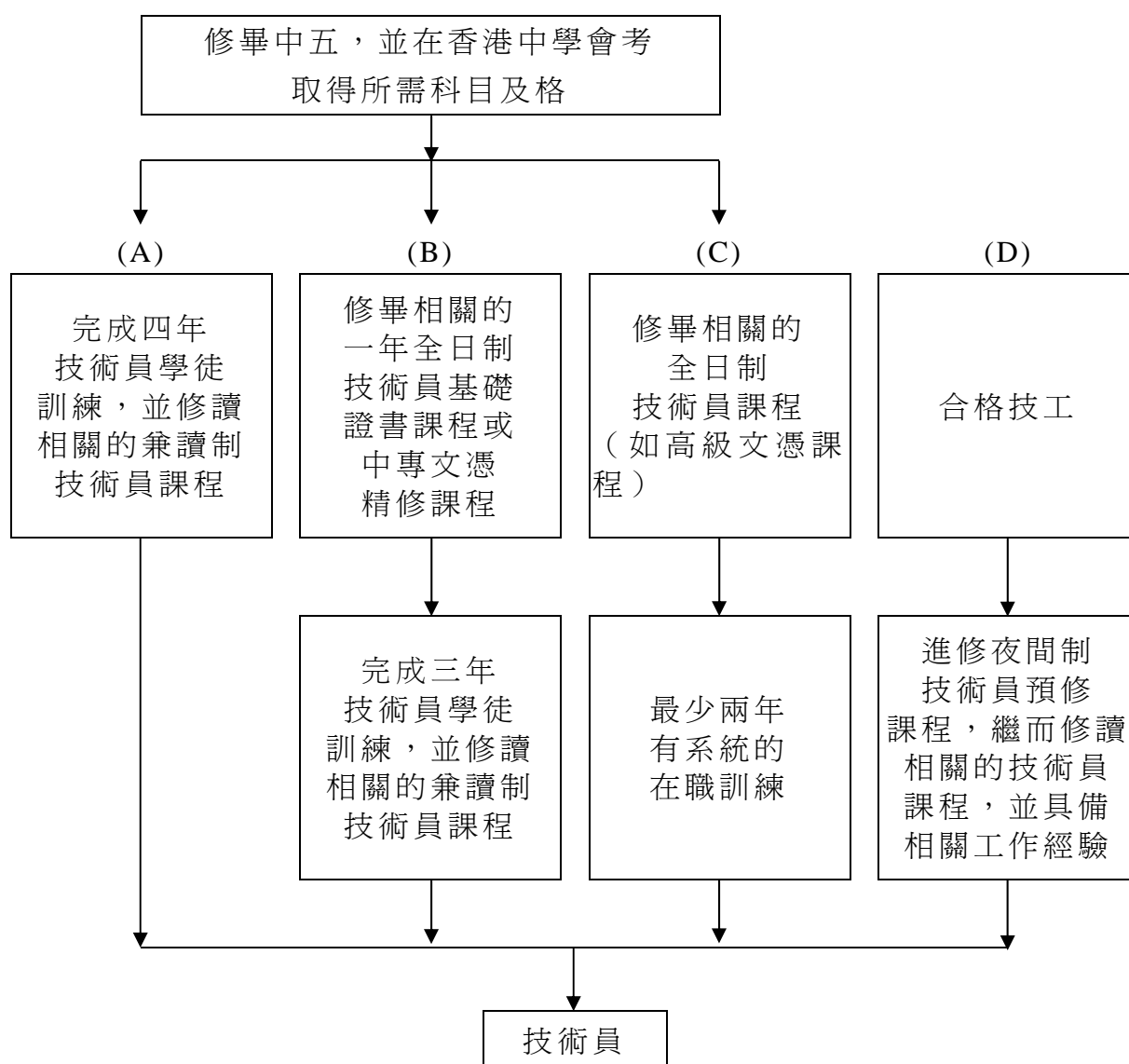
新科技培訓計劃

4.13 職業訓練局自 1992 年起一直負責推行新科技培訓計劃，向有意讓僱員接受新科技培訓的本地公司提供協助，使其僱員能學以致用，協助業務發展。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。此外，職訓局在香港生產力促進局及其他機構協助下，亦會協助僱主物色合適的訓練機會。僱主宜充分利用是項計劃。

技術員訓練

4.14 技術員的職位介乎技師與技工之間。技術員憑著本身經驗，以及曾接受的教育及實務訓練，應能運用已確立的技術解決技術問題。技術員一般應能在技師的督導下，擔當一定程度的技術職務。圖 4.2 為技術員的訓練途徑：

圖 4.2：技術員訓練



4.15 香港理工大學及職訓局屬下的香港專業教育學院（專教院）開辦一系列電子工程及相關學科的高級文憑課程。下表載列該兩家院校相關全日制高級文憑課程的預計畢業生人數：

表 4.2: 預計高級文憑畢業生人數

全日制高級文憑課程	預計畢業生人數	
	2007/08	2008/09
電子及資訊／通訊工程	115	150
電子工程及工商管理	33	-
電腦工程	39	55
生活時尚電子產品	-	47
互聯網／多媒體科技	168	144
總數	355	396

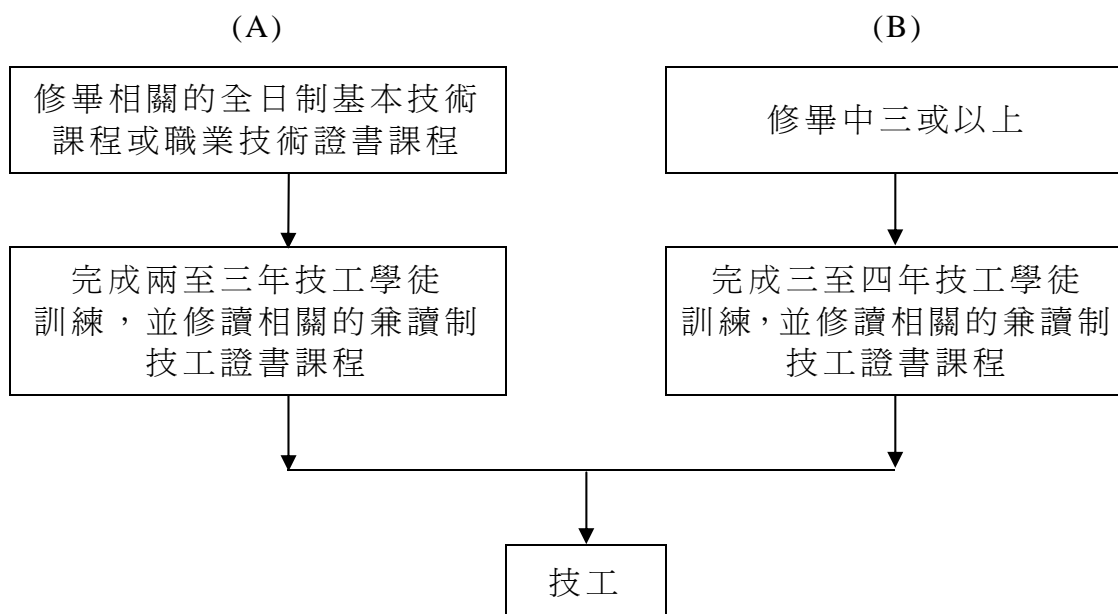
4.16 職訓局屬下的電子業訓練中心亦為中五離校生開辦一年全日制電子技術員基礎證書課程，以及一年全日制中專文憑精修（電訊支援服務）課程。該兩個課程於 2007/08 及 2008/09 年度的預計畢業生人數約為每年 170 人。

4.17 預測未來四年業內對相關技術員級人手（電子技術員、繪圖員、製造／品質保證技術員、程序編製員，以及網站開發員／設計員）的需求為每年 922 至 1 121 人。雖然部分技術員職位可能會由參加學徒訓練計劃的中學離校生，以及透過內部提升富經驗的技工來填補，但高級文憑及技術員基礎課程畢業生總人數約為 550 人，仍不足以應付預測需求。本會建議教育及培訓機構考慮提供更多電子工程及相關範疇的技術員訓練名額，以滿足業界需求。

技工訓練

4.18 技工能夠在極少指導和監督下，將多方面的技能應用到工作上。技工除須具備實際技能外，亦須掌握相關的理論知識，才能適應科技發展。完善的技工學徒訓練會兩者兼顧。圖 4.3 為訓練技工的一般途徑：

圖 4.3: 技工訓練



4.19 本會推薦途徑(A)，原因是訓練期較短，加上學徒已受過適當基本訓練，在開始接受學徒訓練時，即能投入生產。

4.20 電子業訓練中心為中三離校生開辦三年制中專文憑（電訊支援服務）課程。修畢第二年中專文憑課程而並無升讀第三年課程的學員將獲頒發職業技術證書，以便投身電子業技工行列。預計修畢第二年中專文憑課程的畢業生人數約為每年 30 人。由於預測業內對有關技工級人手（電纜接駁技工／駁線技工及電子技工）的需求為每年 370 至 452 人，經由訓練中心培訓的技工人數將遠較預期需求為少。本會促請僱主為年輕人提供更多培訓機會，亦促請培訓機構考慮增加訓練名額，使受訓者可於投身業界前掌握基本技能。

教育及培訓機構

4.21 職訓局屬下香港專業教育學院（專教院）及電子業訓練中心，以及幾所大專院校均為電子業從業員提供多種職前及在職培訓課程。本會促請業內僱主聘請各院校和機構的畢業生作為學徒／見習員，並資助僱員修讀有關的技能提升課程，以充分利用該等機構內的培訓設施。

香港科技園公司

4.22 香港特區政府於 2001 年成立香港科技園公司（香港科技園），以協作形式向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，包括透過培育計劃培育新成立的科技公司、在科學園內為應用研發活動提供各種設備和服務、於創新中心開辦設計中心，以及在工業邨內提供進行生產所需的土地和設備。科學園提供良好的研發環境及支援服務，促進分屬四種科技領域的入駐公司互相合作並發揮協同效應，該四大領域分別為電子、資訊科技及電訊、生物科技，以及精密工程。科學園內的先進設施包括集成電路設計中心、集成電路開發支援中心、光電子開發支援中心，以及無線通訊測試中心。僱主應善用香港科技園提供的支援，特別是集成電路設計方面的設備和服務，以協助公司業務發展。

職業訓練局的培訓服務

4.23 職業訓練局免費協助僱主籌辦學徒訓練計劃，透過計劃有效地訓練技術員及技工，以應付業內需要。僱主可與職訓局聯絡，就成立培訓計劃及招聘學徒／見習員尋求協助。

Appendices and Annexes

附錄及附件

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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 May 2007 預測至 2007 年 5 月時的僱員總數
TECHNOLOGIST LEVEL 技師級				
Electronics Engineer 電子工程師	293	-	18	311
Electrical Engineer 電機工程師	24	-	2	26
Mechanical Engineer 機械工程師	201	4	8	213
Manufacturing/Quality Assurance Engineer 製造/品質保證工程師	296	6	16	318
Chemical Engineer 化學工程師	32	-	6	38
Product/Graphic Designer 產品/平面設計員	194	-	8	202
System Analyst 系統分析員	40	2	4	46
Sub-total 小計	1 080	12	62	1 154
TECHNICIAN LEVEL 技術員級				
Electronics Technician 電子技術員	576	24	10	610
Mechanical Technician 機械技術員	548	3	17	565
Draughtsman 繪圖員	25	-	5	30
Manufacturing/Quality Assurance Technician 製造/品質保證技術員	352	5	4	356
Supervisor/Foreman/Leader 監督/管工/組長	541	-	6	547
Programmer 程序編製員	42	-	1	43
Web Developer/Designer 網站開發員/設計員	3	-	-	3
Sub-total 小計	2 087	32	43	2 154
CRAFTSMAN LEVEL 技工級				
Cable Joiner/Wireman 電纜接駁技工/駁線技工	-	-	-	-
Electronics Craftsman 電子技工	582	6	12	600
Electrician 電氣技工	31	-	-	31
Mechanic 技工	111	15	-	111
Sub-total 小計	724	21	12	742
OPERATIVE LEVEL 操作工級				
Operator 生產線操作工	5 513	15	82	5 670
Sub-total 小計	5 513	15	82	5 670
GRAND TOTAL 總計	9 404	80	199	9 720

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 May 2007 預測至 2007 年 5 月時的僱員總數
TECHNOLOGIST LEVEL 技師級				
Electronics Engineer 電子工程師	4 227	19	182	4 424
Electrical Engineer 電機工程師	447	3	4	451
Mechanical Engineer 機械工程師	615	2	30	646
Manufacturing/Quality Assurance Engineer 製造/品質保證工程師	1 229	15	25	1 254
Chemical Engineer 化學工程師	43	-	-	43
Product/Graphic Designer 產品/平面設計員	468	8	14	482
System Analyst 系統分析員	3 490	-	28	3 518
Sub-total 小計	10 519	47	283	10 818
TECHNICIAN LEVEL 技術員級				
Electronics Technician 電子技術員	6 689	74	182	6 921
Mechanical Technician 機械技術員	536	2	6	544
Draughtsman 繪圖員	122	-	-	122
Manufacturing/Quality Assurance Technician 製造/品質保證技術員	536	8	20	562
Supervisor/Foreman/Leader 監督/管工/組長	910	-	11	921
Programmer 程序編製員	3 822	-	120	3 942
Web Developer/Designer 網站開發員/設計員	415	-	1	416
Sub-total 小計	13 030	84	340	13 428
CRAFTSMAN LEVEL 技工級				
Cable Jointer/Wireman 電纜接駁技工/駁線技工	316	18	-	316
Electronics Craftsman 電子技工	2 634	151	184	2 904
Electrician 電氣技工	716	51	18	752
Mechanic 技工	39	2	-	39
Sub-total 小計	3 705	222	202	4 011
OPERATIVE LEVEL 操作工級				
Operator 生產線操作工	915	-	18	933
Sub-total 小計	915	-	18	933
GRAND TOTAL 總計	28 169	353	843	29 190

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 May 2007 預測至 2007 年 5 月時的僱員總數
TECHNOLOGIST LEVEL 技師級				
Electronics Engineer 電子工程師	1 422	-	8	1 430
Electrical Engineer 電機工程師	54	-	-	54
Mechanical Engineer 機械工程師	13	-	-	13
Manufacturing/Quality Assurance Engineer 製造/品質保證工程師	16	-	-	16
Chemical Engineer 化學工程師	-	-	-	-
Product/Graphic Designer 產品/平面設計員	7	-	-	7
System Analyst 系統分析員	563	-	1	564
Sub-total 小計	2 075	-	9	2 084
TECHNICIAN LEVEL 技術員級				
Electronics Technician 電子技術員	3 847	5	24	3 871
Mechanical Technician 機械技術員	-	-	-	-
Draughtsman 繪圖員	10	-	-	10
Manufacturing/Quality Assurance Technician 製造/品質保證技術員	18	-	-	18
Supervisor/Foreman/Leader 監督/管工/組長	229	-	-	229
Programmer 程序編製員	182	-	1	183
Web Developer/Designer 網站開發員/設計員	25	-	-	25
Sub-total 小計	4 311	5	25	4 336
CRAFTSMAN LEVEL 技工級				
Cable Jointer/Wireman 電纜接駁技工/駁線技工	110	-	-	110
Electronics Craftsman 電子技工	664	-	3	667
Electrician 電氣技工	31	-	-	31
Mechanic 技工	2	-	-	2
Sub-total 小計	807	-	3	810
OPERATIVE LEVEL 操作工級				
Operator 生產線操作工	148	-	-	148
Sub-total 小計	148	-	-	148
GRAND TOTAL 總計	7 341	5	37	7 378

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 May 2007 預測至 2007 年 5 月時的僱員總數
TECHNOLOGIST LEVEL 技師級				
Electronics Engineer 電子工程師	343	-	7	385
Electrical Engineer 電機工程師	8	-	-	8
Mechanical Engineer 機械工程師	-	-	-	-
Manufacturing/Quality Assurance Engineer 製造/品質保證工程師	43	-	-	43
Chemical Engineer 化學工程師	-	-	-	-
Product/Graphic Designer 產品/平面設計員	35	-	-	35
System Analyst 系統分析員	163	2	-	165
Sub-total 小計	592	2	7	636
TECHNICIAN LEVEL 技術員級				
Electronics Technician 電子技術員	471	2	-	473
Mechanical Technician 機械技術員	16	-	-	16
Draughtsman 繪圖員	4	-	-	4
Manufacturing/Quality Assurance Technician 製造/品質保證技術員	2	-	-	2
Supervisor/Foreman/Leader 監督/管工/組長	11	-	-	11
Programmer 程序編製員	124	2	12	136
Web Developer/Designer 網站開發員/設計員	6	-	-	6
Sub-total 小計	634	4	12	648
CRAFTSMAN LEVEL 技工級				
Cable Joints/Wireman 電纜接駁技工/駁線技工	-	-	-	-
Electronics Craftsman 電子技工	133	-	-	133
Electrician 電氣技工	65	8	-	65
Mechanic 技工	-	-	-	-
Sub-total 小計	198	8	-	198
OPERATIVE LEVEL 操作工級				
Operator 生產線操作工	194	-	-	194
Sub-total 小計	194	-	-	194
GRAND TOTAL 總計	1 618	14	19	1 676

MANPOWER STATISTICS OF THE ELECTRONICS INDUSTRY

電子業人力統計數字

Sector 5: Design Houses, Relevant Departments in Educational Institutions and Government

(門類五：設計公司、有關大學院系及政府部門)

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 May 2007 預測至 2007 年 5 月時的僱員總數
TECHNOLOGIST LEVEL 技師級				
Electronics Engineer 電子工程師	440	6	17	453
Electrical Engineer 電機工程師	14	-	1	14
Mechanical Engineer 機械工程師	17	-	1	18
Manufacturing/Quality Assurance Engineer 製造/品質保證工程師	21	-	1	22
Chemical Engineer 化學工程師	12	-	-	12
Product/Graphic Designer 產品/平面設計員	14	-	-	14
System Analyst 系統分析員	36	-	5	41
Sub-total 小計	554	6	25	574
TECHNICIAN LEVEL 技術員級				
Electronics Technician 電子技術員	895	23	37	927
Mechanical Technician 機械技術員	22	-	-	22
Draughtsman 繪圖員	4	-	-	4
Manufacturing/Quality Assurance Technician 製造/品質保證技術員	9	-	-	9
Supervisor/Foreman/Leader 監督/管工/組長	110	-	-	110
Programmer 程序編製員	84	1	15	100
Web Developer/Designer 網站開發員/設計員	1	-	-	1
Sub-total 小計	1 125	24	52	1 173
CRAFTSMAN LEVEL 技工級				
Cable Joints/Wireman 電纜接駁技工/駁線技工	-	-	-	-
Electronics Craftsman 電子技工	243	-	7	248
Electrician 電氣技工	-	-	-	-
Mechanic 技工	21	-	-	21
Sub-total 小計	264	-	7	269
OPERATIVE LEVEL 操作工級				
Operator 生產線操作工	16	-	1	17
Sub-total 小計	16	-	1	17
GRAND TOTAL 總計	1 959	30	85	2 033

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 May 2007 預測至 2007 年 5 月時的僱員總數
TECHNOLOGIST LEVEL 技師級				
Electronics Engineer 電子工程師	6 725	25	232	7 003
Electrical Engineer 電機工程師	547	3	7	553
Mechanical Engineer 機械工程師	846	6	39	890
Manufacturing/Quality Assurance Engineer 製造/品質保證工程師	1 605	21	42	1 653
Chemical Engineer 化學工程師	87	-	6	93
Product/Graphic Designer 產品/平面設計員	718	8	22	740
System Analyst 系統分析員	4 292	4	38	4 334
Sub-total 小計	14 820	67	386	15 266
TECHNICIAN LEVEL 技術員級				
Electronics Technician 電子技術員	12 478	128	253	12 802
Mechanical Technician 機械技術員	1 122	5	23	1 147
Draughtsman 繪圖員	165	-	5	170
Manufacturing/Quality Assurance Technician 製造/品質保證技術員	917	13	24	947
Supervisor/Foreman/Leader 監督/管工/組長	1 801	-	17	1 818
Programmer 程序編製員	4 254	3	149	4 404
Web Developer/Designer 網站開發員/設計員	450	-	1	451
Sub-total 小計	21 187	149	472	21 739
CRAFTSMAN LEVEL 技工級				
Cable Jointer/Wireman 電纜接駁技工/駁線技工	426	18	-	426
Electronics Craftsman 電子技工	4 256	157	206	4 552
Electrician 電氣技工	843	59	18	879
Mechanic 技工	173	17	-	173
Sub-total 小計	5 698	251	224	6 030
OPERATIVE LEVEL 操作工級				
Operator 生產線操作工	6 786	15	101	6 962
Sub-total 小計	6 786	15	101	6 962
GRAND TOTAL 總計	48 491	482	1183	49 997

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 \$6,001 以下	\$6,001 - \$8,000	\$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	1 238	-	-	33	264	1 540	919	851	1 880
Electrical Engineer 電機工程師	97	-	-	-	60	58	120	23	189
Mechanical Engineer 機械工程師	61	-	-	-	36	207	264	78	200
Manufacturing/Quality Assurance Engineer 製造／品質保證工程師	110	-	-	-	241	288	173	266	527
Chemical Engineer 化學工程師	4	-	-	-	22	59	-	-	2
Product/Graphic Designer 產品／平面設計員	29	-	-	10	72	365	99	117	26
System Analyst 系統分析員	1 208	-	-	-	271	437	898	323	1 155
Sub-total 小計	2 747	-	-	43	966	2 954	2 473	1 658	3 979
TECHNICIAN LEVEL 技術員級									
Electronics Technician 電子技術員	2 660	-	70	941	3 855	2 072	1 609	1 132	139
Mechanical Technician 機械技術員	159	-	-	440	160	244	21	20	78
Draughtsman 繪圖員	22	1	2	106	24	6	4	-	-
Manufacturing/Quality Assurance Technician 製造／品質保證技術員	73	-	42	175	324	146	144	10	3
Supervisor/Foreman/Leader 監督／管工／組長	140	-	13	101	525	547	237	236	2
Programmer 程序編製員	332	-	-	70	855	1 007	1 740	250	-
Web Developer/Designer 網站開發員／設計員	77	-	-	-	275	64	4	30	-
Sub-total 小計	3 463	1	127	1 833	6 018	4 086	3 759	1 678	222
CRAFTSMAN LEVEL 技工級									
Cable Joints/Wireman 電纜接駁技工／ 駁線技工	-	-	123	35	268	-	-	-	-
Electronics Craftsman 電子技工	87	1	675	1 174	2 083	231	-	5	-
Electrician 電氣技工	45	-	17	472	298	11	-	-	-
Mechanic 技工	15	-	26	29	100	3	-	-	-
Sub-total 小計	147	1	841	1 710	2 749	245	-	5	-
OPERATIVE LEVEL 操作工級									
Operator 生產線操作工	690	1 914	2 729	1 329	122	2	-	-	-
Sub-total 小計	690	1 914	2 729	1 329	122	2	-	-	-
GRAND TOTAL 總計	7 047	1 916	3 697	4 915	9 855	7 287	6 232	3 341	4 201

RECOMMENDED NUMBER OF TRAINEES
TO BE TAKEN ON ANNUALLY FOR THE NEXT FEW YEARS
建議未來幾年應取錄的受訓者人數

Job Title 職稱	No. of Workers Employed at Time of Survey (2006) 調查期間 (2006 年) 僱員人數	Recommended Number of Trainees to be Taken on Annually Starting from 2007 建議由 2007 年起 每年取錄的受訓者人數
TECHNOLOGIST LEVEL 技師級		
Electronics Engineer 電子工程師	6 725	363 – 445
Electrical Engineer 電機工程師	547	29 – 36
Mechanical Engineer 機械工程師	846	45 – 56
Manufacturing/Quality Assurance Engineer 製造/品質保證工程師	1 605	87 – 106
Chemical Engineer 化學工程師	87	5 – 6
Product/Graphic Designer 產品/平面設計員	718	39 – 47
System Analyst 系統分析員	4 292	232 – 284
Sub-total 小計	14 820	800 – 980
TECHNICIAN LEVEL 技術員級		
Electronics Technician 電子技術員	12 478	630 – 766
Mechanical Technician 機械技術員	1 122	57 – 69
Draughtsman 繪圖員	165	8 – 10
Manufacturing/Quality Assurance Technician 製造/品質保證技術員	917	46 – 56
Supervisor/Foreman/Leader 監督/管工/組長	1 801	91 – 110
Programmer 程序編製員	4 254	215 – 261
Web Developer/Designer 網站開發員/設計員	450	23 – 28
Sub-total 小計	21 187	1 070 – 1 300
CRAFTSMAN LEVEL 技工級		
Cable Jointer/Wireman 電纜接駁技工/駁線技工	426	34 – 41
Electronics Craftsman 電子技工	4 256	336 – 411
Electrician 電氣技工	843	66 – 81
Mechanic 技工	173	14 – 17
Sub-total 小計	5 698	450 – 550

Membership of the Electronics and Telecommunications Training Board
(August 2007)

電子業及電訊業訓練委員會委員名單
(2007年8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)

Members:
委員

Mr CHAI Ngai-chiu, Sunny (nominated by the Federation of Hong Kong Industries)
查毅超先生 (香港工業總會提名)

Mr CHAN Cheuk-man, Edmond (nominated by an Electronics Manufacturing Company (Consumer Products))
陳焯民先生 (一間電子消費產品製造公司提名)

Prof CHEUNG Ying-sheung, Paul (nominated by a Local University)
張英相教授 (本地一大學提名)

Ms HUI Ching-yee, Rita (nominated by a Telecommunication Company (The Mobile Telecommunication Network Services Sector))
許清儀女士 (一間流動電訊網絡服務公司提名)

Mr LAI Yuen-lung (nominated by the Hong Kong & Kowloon Electronics Industry Employees' General Union)
黎元龍先生 (港九電子工業職工總會提名)

Mr LEUNG Wai-ming, Frank (nominated by the Hong Kong Productivity Council)
梁偉明先生 (香港生產力促進局提名)

Ir Dr LI Chi-kwong (nominated by the Hong Kong Institution of Engineers)
李志光博士 (香港工程師學會提名)

Mr MAK Moon-kuen 麥滿權先生	(nominated by an Electronics Manufacturing Company (Semi-Conductor)) (一間半導體製造公司提名)
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 TSANG Hon-chung 曾漢中先生	(nominated by an Electronics Trading/ Engineering Services Company) (一間電子貿易／工程服務公司提名)
Mr TSE Pui-tak, Daniel 謝培德先生	(nominated by an Electronics Manufacturing Company (Telecommunications)) (一間電訊器材製造公司提名)
Mr WONG Chi-chiu, Albert 黃志超先生	(nominated by a Telecommunication Company (The Fixed Telecommunication Network Services Sector)) (一間固定電訊網絡服務公司提名)
Mr YEUNG Chi-hung, Johnny 楊志雄先生	(Ad Personam) (獨立人士)
Mr ZAU Shou-chung, Bernard 邵守忠先生	(nominated by an Electronics Manufacturing Company (Components/ Parts)) (一間電子元件及配件製造公司提名)
Mr CHU Kwai-luen, Albert 朱桂鑾先生	(representative of the Executive Director of the Vocational Training Council) (職業訓練局執行幹事代表)
Mr CHAN Tze-yee 陳子儀先生	(representative of the Director-General of Telecommunications) (電訊管理局局長代表)
Mr CHAN Ping-sun 陳炳新先生	(representative of the Director of Electrical and Mechanical Services) (機電工程署署長代表)
Miss TING Mui-yee, Judy 丁梅綺女士	(representative of the Director-General of Trade and Industry) (工業貿易署署長代表)

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(沙田分校)電子及資訊
工程系 系主任)

Mr MAK Chi-keung
麥志強先生

Head of Department (Electronic & Information
Engineering), Hong Kong Institute of Vocational
Education (Kwun Tong)
(香港專業教育學院(觀塘分校)電子及資訊
工程系 系主任)

Mr WONG Kit-chiu, Michael
黃杰超先生

Centre Manager, Electronics Industry Training Centre
(電子業訓練中心 中心主任)

Secretary:

秘書

Mr NG Sai-kit
吳世傑先生

(Vocational Training Council)
(職業訓練局)

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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 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 on matters pertaining to the development and promotion of vocational education and training in the industry, including employers, employers' associations, trade unions, professional institutions, training and educational institutions and government departments.
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)、訓練及發展中心提出建議。
5. 就 IVE、訓練及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。

Part I

(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) No. 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 code : 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
TECHNOLOGIST LEVEL 技師級							
1 Electronics Engineer 電子工程師	2	1 0 1					Average Monthly Income Range 每月平均收入幅度
2 Electrical Engineer 電機工程師	2	1 0 2					1 Under \$6,001 以下
3 Mechanical Engineer 機械工程師	2	1 0 3					2 \$6,001 - \$8,000
4 Manufacturing/Quality Assurance Engineer 製造/品質保證工程師	2	1 0 4					3 \$8,001 - \$10,000
5 Chemical Engineer 化學工程師	2	1 0 5					4 \$10,001 - \$15,000
6 Product/Graphic Designer 產品/平面設計員	2	1 0 6					5 \$15,001 - \$20,000
7 System Analyst 系統分析員	2	1 0 7					6 \$20,001 - \$25,000
TECHNICIAN LEVEL 技術員級							7 \$25,001 - \$30,000
8 Electronics Technician 電子技術員	2	2 0 1					8 Over \$30,000 以上
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					
CRAFTSMAN LEVEL 技工級							
15 Cable Joints/Wireman 電纜接駁技工/駁線技工	2	3 0 1					
16 Electronics Craftsman 電子技工	2	3 0 2					
17 Electrician 電氣技工	2	3 0 3					
18 Mechanic 技工	2	3 0 4					
OPERATIVE LEVEL 操作工級							
19 Operator 生產線操作工	2	4 0 1					
20	2						
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 apprenticeship 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。

1. Internal Promotion
內部晉升

Please fill in the no. 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 Technologist 由技術員晉升至技師	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 1	8 9 10	11 12 13	14 15 16

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 personel 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
17 18 19 20	21 22 23 24	25 26 27 28

3. Education and Training an Employee Should Have
僱員宜有的教育及訓練

Please enter in the boxes the education and training an employee should have according to the following codes:

請將僱員宜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/院士或同等學歷	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		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				

Technologist 技師			Technician 技術員			Craftsman 技工		
Education 教育	Training Mode 訓練方式	Training Period 訓練時間	Education 教育	Training Mode 訓練方式	Training Period 訓練時間	Education 教育	Training Mode 訓練方式	Training Period 訓練時間
29	30	31	32	33	34	35	36	37

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38	39
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The 2006 Manpower Survey of the
Electronics Industry
電子業二零零六年人力調查

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 Annex E.
填寫調查表前，請先詳閱附件 戊 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 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 Annex E, 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件 戊 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 main duty irrespective of any additional secondary duties he 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 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 were to carry out his 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. 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。

(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) No. 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 code : 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 \$6,001 以下
3 Mechanical Engineer 機械工程師	2	1 0 3	7	2	2	0	0	2	\$6,001 - \$8,000
4 Manufacturing/Quality Assurance Engineer 製造/品質保證工程師	2	1 0 4	7	1	1	0	0	3	\$8,001 - \$10,000
5 Chemical Engineer 化學工程師	2	1 0 5						4	\$10,001 - \$15,000
6 Product/Graphic Designer 產品/平面設計師	2	1 0 6						5	\$15,001 - \$20,000
7 System Analyst 系統分析員	2	1 0 7						6	\$20,001 - \$25,000
TECHNICIAN LEVEL 技術員級									
8 Electronics Technician 電子技術員	2	2 0 1	6	3	4	1	1	7	\$25,001 - \$30,000
9 Mechanical Technician 機械技術員	2	2 0 2	5	1	1	0	0	8	Over \$30,000 以上
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							
CRAFTSMAN LEVEL 技工級									
15 Cable Joints/Wireman 電纜接駁技工/駁線技工	2	3 0 1							
16 Electronics Craftsman 電子技工	2	3 0 2	3	3	4	1	1		
17 Electrician 電氣技工	2	3 0 3	3	1	1	0	0		
18 Mechanic 技工	2	3 0 4							
OPERATIVE LEVEL 操作工級									
19 Operator 生產線操作工	2	4 0 1	2	5 0	5 5	5	0		
20	2								
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	Electronics Engineer [Electronics Sales/ Support Engineer, Telecommunications Engineer] 電子工程師 [電子推銷／支援工程 師，電訊工程師]	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: (a) computer systems; (b) consumer electronic products; (c) electronic instruments and equipment; (d) semiconductor and electronic components; (e) telecommunication systems; (f) other electronic engineering fields. 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： (a) 電腦系統； (b) 電子消費產品； (c) 電子儀器及設備； (d) 半導體及電子零件； (e) 電訊系統； (f) 電子工程其他方面的工作。
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。

Job Code 職位編號	Job Title 職稱	Job Description 工作說明
TECHNOLOGIST LEVEL (Continued) 技師級 (續)		
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 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。
105	Chemical Engineer 化學工程師	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. 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。

Job Code 職位編號	Job Title 職稱	Job Description 工作說明
TECHNOLOGIST LEVEL (Continued) 技師級 (續)		
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 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 microcomputers, microprocessors and electronics 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，為微型電腦、微處理器及電子系統設計系統軟件／軟件。</p>
TECHNICIAN LEVEL 技術員級		
201	Electronics Technician [Electronics Sales/ Support Technician, Telecommunications Technician, Computer Technician, Audio-Visual Technician]	<p>Performs technical tasks, normally under the direction and supervision of an electronics/telecommunications engineers, contributory to design, development, manufacture, technical sales/support, construction, installation, operation, maintenance and repair of:</p> <p>(i) Electronic and electrical components, products, equipment and systems;</p> <p>(ii) Telecommunication systems and equipment, such as telephone, broadcasting, radio/ microwave/ satellite communication, mobile communication and data communication systems;</p> <p>(iii) Computer networks, systems and peripherals;</p> <p>(iv) Audio-visual and associated equipment and systems.</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)		
	電子技術員 〔電子推銷／支援技術員，電訊技術員，電腦技術員，影音技術員〕	<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、技術推銷／支援、構造、安裝、操作、保養、修理：</p> <ul style="list-style-type: none"> (i) 電子及電機零件、產品、器材及系統； (ii) 電訊系統及器材，例如電話、廣播、無線電／微波／衛星通訊、流動通訊及數據通訊系統； (iii) 電腦網絡、系統及周邊設備； (iv) 影音及附屬設備與系統。
202	Mechanical Technician 機械技術員	<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>
203	Draughtsman 繪圖員	<p>Prepares detail and assembly drawings and circuit diagrams according to design specifications.</p> <p>按照設計規格繪製明細圖、裝配圖及線路圖。</p>
204	Manufacturing/ Quality Assurance Technician [Quality Control Technician] 製造／品質保證技術員 [品質控制技術員]	<p>Performs technical tasks, normally under the direction and supervision of a manufacturing/industrial or a quality assurance/control engineer, contributory to:</p> <ul style="list-style-type: none"> (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. <p>通常在製造／工業或品質保證／控制工程師的監督下擔任：</p> <ul style="list-style-type: none"> (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。

Job Code 職位編號	Job Title 職稱	Job Description 工作說明
TECHNICIAN LEVEL (Continued) 技術員級 (續)		
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。
206	Programmer 程式編製員	Develops computer programmes to implement software design, normally under the direction and supervision of a systems analyst/software engineer. 通常在系統分析員／軟件工程師的督導下研究電腦程式，以便推行電腦軟件設計。
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, animation graphics 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、動畫或其他多媒體內容，以便配合電腦應用軟件使用。
CRAFTSMAN LEVEL 技工級		
301	Cable Jointer / 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。

Job Code 職位編號	Job Title 職稱	Job Description 工作說明
CRAFTSMAN LEVEL (Continued) 技工級 (續)		
302	<p>Electronics Craftsman [Audio Visual and Radio Frequency Mechanic, Repairman (Electronics Manufacturing), Equipment / Instrument Mechanic]</p> <p>電子技工 [影音及無線電技工， 修理技工（電子製 造），裝備／儀器工]</p>	<p>Carries out one or more of the following activities:</p> <p>(i) Installs, services and repairs radio, television receivers, consumer audio-video equipment and community antenna systems;</p> <p>(ii) Diagnoses, locates and repairs faults in the manufacture of electronic devices and products, systematically records these faults and recommends changes to minimize such occurrence;</p> <p>(iii) Assembles, inspects, tests, repairs, calibrates and maintains electronic, electrical and mechanical instruments, meters and equipment.</p> <p>擔任以下一項或多項工作：</p> <p>(i) 安裝、保養及修理收音機、電視機、影音設備及公用天線系統；</p> <p>(ii) 在製造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；</p> <p>(iii) 裝配、查驗、測試、修理、校準及保養電子、電機及機械儀器、儀錶及設備。</p>
303	<p>Electrician</p> <p>電氣技工</p>	<p>Installs, maintains, tests and repairs electrical wiring, devices and equipment, and building services in buildings and other structures in accordance with regulations and specifications.</p> <p>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。</p>
304	<p>Mechanic [Maintenance Mechanic / Fitter / Machinist, Tool and Die Maker, Mould and Die Maker and Repairer]</p>	<p>Carries one or more of the following activities:</p> <p>(i) Fits, assembles, installs, repairs and maintains plant and machinery and makes replacement parts when required;</p> <p>(ii) Sets up and operates machine tools to produce components according to specifications;</p> <p>(iii) Makes, maintains and repairs press tools, dies, cutting tools, gauges, jigs and fixtures according to drawings and other specifications;</p> <p>(iv) Makes, maintains and repairs moulds and dies for plastics processing machines according to drawings and other specifications.</p>

Job Code 職位編號	Job Title 職稱	Job Description 工作說明
CRAFTSMAN LEVEL (Continued) 技工級 (續)		
	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]	擔任以下一項或多項工作： <ul style="list-style-type: none"> (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。
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]	Carries any one of the operative jobs in assembly line in the areas of: <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) Performing 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) To handle 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