2011 Manpower Survey Report
Plastics Industry

Plastics Training Board
Vocational Training Council

塑膠業
2011 年人力調查報告

職業訓練局
塑膠業訓練委員會

CONTENTS

目錄

LIST OF APPENDICES

附錄表

Executive Summary of the
Report on the 2011 Manpower Survey of the Plastics Industry

Objective and Coverage of the Survey

The Plastics Training Board conducted a manpower survey during the period from 18 July to 17 September 2011 to collect up-to-date information on the technical manpower of the plastics industry with a view to assessing its current and future manpower requirements and making recommendations to meet these requirements.

2. The survey covered a sample of 959 establishments, including 758 from the Plastics Manufacturing and Trading Sector and 201 from the Plastics Manufacturing Services Sector. It was the eighth manpower survey in which the scope had been expanded to cover the Plastics Trading Sector and the Plastics Manufacturing Services Sector. The effective response rate was 93.8%. The data collected were statistically grossed up to reflect the overall manpower situation of the plastics industry at the time of the survey.

Survey Findings

3. The survey revealed that at the time of survey in 2011, a total of 9 845 employees (i.e. those employed in the principal jobs of the plastics industry as specified in the manpower survey report) were employed in the plastics industry. The distribution of the workforce by job level is:

Job Level	Number of Employees	Percentage of Total Number of Employees
Technologist	4 097	41.6%
Technician	3 652	37.1%
Craftsman	386	3.9%
Operative	907	9.2%
Unskilled	803	8.2%
Total	9 845	100.0%

4. The distribution of employees by job level and by sector is given below:

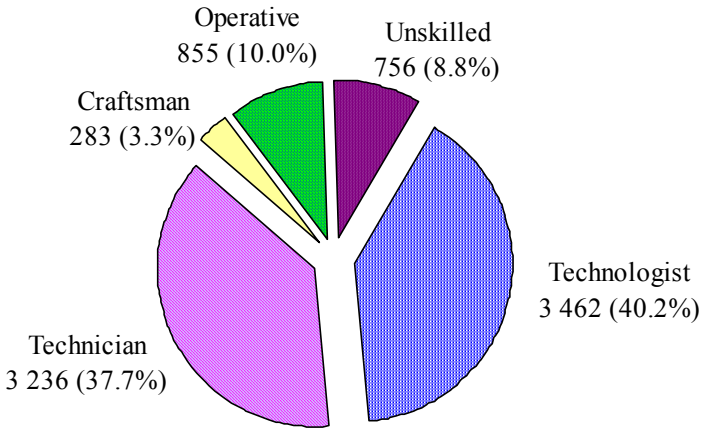
Table A: Distribution of Employees by Job Level and by Sector

Job Level	Sector A Manufacturing & Trading Sector			Sector B Manufacturing Services Sector	All Sectors
	Manufacturing	Trading	Total		
Technologist	152	3 310	3 462	635	4 097
Technician	194	3 042	3 236	416	3 652
Craftsman	195	88	283	103	386
Operative	763	92	855	52	907
Unskilled	313	443	756	47	803
Total	1 617	6 975	8 592	1 253	9 845

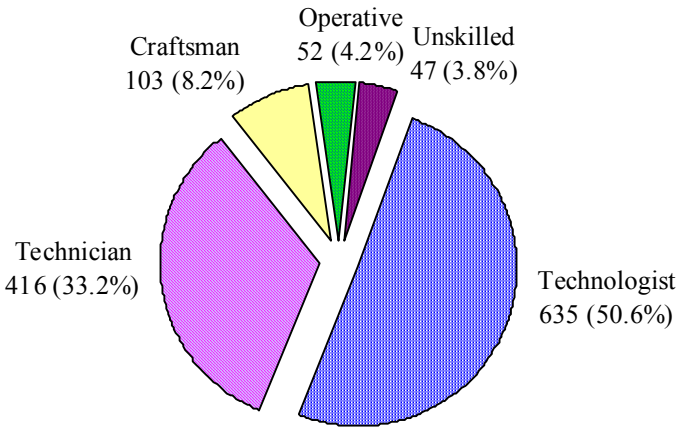
5. Figure 1 shows the manpower structure and the distribution of employees by sector and by job level.

Figure 1 : Manpower by Job Level

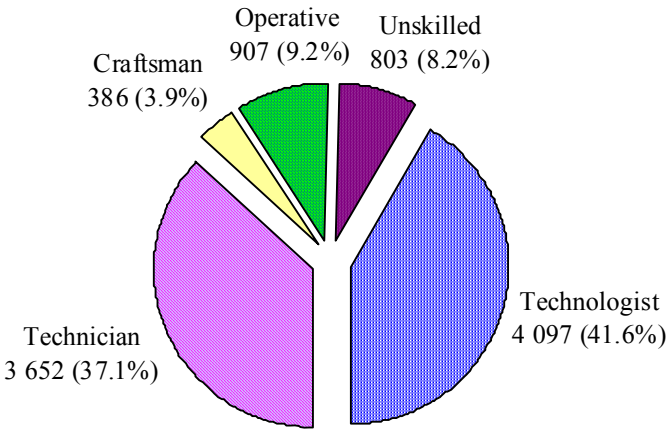
Sector A : Manufacturing and Trading Sector (8 592 employees)



Sector B : Manufacturing Services Sector (1 253 employees)



All Sectors : 9 845 employees



6. At the time of the survey, there were 6 persons receiving various forms of training. Of these, 3 were at the technologist level, 1 at the craftsman level and 2 at the operative level.

7. Employers reported a total of 151 vacancies, representing about 1.5% of the workforce. Of these, 44 were at the technologist level, 59 at the technician level, 7 at the craftsman level, 21 at the operative level and 20 at the unskilled level.

8. According to employers, 24 employees had been promoted to higher level jobs between 2010 and 2011. During the same period, 428 technologists, 231 technicians and 2 craftsmen had worked for more than six months outside Hong Kong. They represented 10%, 6% and 0.5% of the workforce at the respective job levels.

9. Employers anticipated that by September 2012, the plastics industry would be employing a total of 9 973 employees, indicating a very mild growth in the total workforce is expected in the year ahead.

10. Employers also reported that a total of 541 568 Mainland workers were employed in their operations in Guangdong Province. Among them, 5 735 were Mainland engineers. Employers also anticipated that by September 2012, they would be employing 5 797 Mainland engineers in their Guangdong operations, representing an increase of about 1.1% of the workforce at that job level. It should be noted that many respondents in this survey either had no idea, or were unsure of the manpower figures in their Mainland operations. Hence, the above figures may not be accurate.

11. It is the eighth time that the scope of the survey has been expanded to cover the plastics trading sector as well as the plastics manufacturing services sector in which a substantial number of technical manpower are employed. The distribution and comparison of manpower by skill level and by sector in 2009 and 2011 are shown in Table B below:

Table B : Distribution and Comparison of Manpower by Skill Level and By Sector (Figures from the 2009 Survey shown in bracket)

Job Level	Plastics Manufacturing & Trading Sector			Plastics Manufacturing Services Sector	All Sectors
	Manufacturing	Trading	Total		
Technologist	152 (112)	3 310 (3 303)	3 462 (3 415)	635 (543)	4 097 (3 958)
Technician	194 (184)	3 042 (2 812)	3 236 (2 996)	416 (303)	3 652 (3 299)
Craftsman	195 (201)	88 (131)	283 (332)	103 (83)	386 (415)
Operative	763 (891)	92 (67)	855 (958)	52 (55)	907 (1 013)
Unskilled	313 (251)	443 (380)	756 (631)	47 (55)	803 (686)
Total	1 617 (1 639)	6 975 (6 693)	8 592 (8 332)	1 253 (1 039)	9 845 (9 371)

Future Manpower Demand

12. Based on the survey findings, the Training Board has projected the additional number of technical workers likely to be required by the industry to cover both growth and wastage at the three skill levels for the next four years as below:

Skill Level	Recommended Annual Intake
Technologist	175 - 214
Technician	153 - 187
Craftsman	10 - 13

13. To cope with the developing needs of the plastics industry, the Training Board urges employers to provide proper on-the-job training, apprenticeship training, and to make use of other training schemes such as the Engineering Graduate Training Scheme, New Technology Training Scheme, Trade Testing and Certification Scheme to develop and upgrade their technical workforce. Employers are also encouraged to sponsor their workers to attend various full-time, part-time training courses offered by the Council's Hong Kong Institute of Vocational Education, Pro-Act Training and Development Centre (Precision Engineering) in order to up-grade their technical knowhow in the plastics industry.

14. With most of the production facilities located at Pearl River Delta (PRD) region and the large workforce of Mainland workers employed by industrialists of the plastics industry, there is a huge demand for training for both Hong Kong and Mainland workers there. The Pro-Act Training and Development Centre (Precision Engineering) offers training programmes especially on areas relating to the plastics injection moulding technology, CNC machining and CAD/CAM technologies, plastics materials knowledge and engineering drawing standards in PRD region for operations set up by Hong Kong employers, on a full-cost recovery basis, in order to provide pro-active support to Hong Kong employers and to meet their training needs there.

Business Outlook

15. The plastics industry has been encountering a number of continuous challenges especially the coming uncertainty of global economy in terms of possible recession in Europe and anaemic growth in the emerging-market economies. Nevertheless, Hong Kong companies have responded by pursuit of transformation and upgrade of their enterprises. They are strengthening their production capacity and quality to move towards the medium and high-end markets;

16. Owing to the continuous shocks from Euro area and slow growth in the US, the moves of Hong Kong remaining manufacturing firms to the Mainland China and other countries may be accelerated. For firms already in the Pearl River Delta area, moving to less developed parts of Mainland and nearby countries may reduce their labour costs and allow them to find semi-skilled workers. However, the enterprises may have difficulties in retaining and finding skilled technicians and management, as well as increase of

transportation and other costs;

17. In the past years, China's central bank has allowed the RMB to appreciate against the US dollar by about 21%. However, China halted appreciation of the RMB when the effects of the global economic crisis became apparent in 2008. In June 2010, China resumed appreciation of the RMB and allowed the RMB/US dollar exchange rate to rise by about 8% through November 2011. According to the analysis of an economist of the Hong Kong Trade Development Council, production costs of manufacturers go up by 2% when the RMB appreciates by 4% against the US dollar;

18. The coastal provinces of Mainland China are facing a labour shortage in these few years as China's economy continues to boom. In 2011, there were lack of about 1 to 2 million workers in Guangdong province according to the estimates of Guangdong officials and media. The factory wages have therefore raised rapidly over the past two years especially for labour-intensive industries;

19. The new Labour Contract Law was enacted in Mainland China in 2008. This law has substantially changed the conditions under which workers and employers can enter into contract and has had important effects on the ability of workers to shape their condition of work. Its announcement signalled a shift in the Chinese government's view of low-cost sourcing and low-value export production as the basis for the next round of economic growth in the country. The industry is feeling the effects of the industrial upgrading movement that is being pushed by both the Central and Guangdong Provincial Governments;

20. Since the Enterprise Income Tax Law came into effect in 2008 to unify the tax treatment for domestic and foreign enterprises in China, the State Administration of Taxation has released many tax circulars addressing the enforcement and administration of the law. In view of loss of tax holiday and reduced rate benefits, small and medium size Hong Kong manufacturers have gradually adapted to the changes in these few years;

21. Product safety is a big challenge for the industry in recent years. The EU and US have introduced more stringent safety standards concerning design, labelling, permissible levels of potentially harmful substances such as phthalates and cadmium. The industry held discussions with relevant officials regarding rules that severely impact on the industry and organised forums and workshops to assist fellow industry people in compliance with the new regulations;

22. As the industry is heavily reliant on both plastics and packaging, it also attracts a lot of attention from overseas and Mainland environmentalists concerned about production of large amounts of yet more potential waste, despite industry efforts to use recycled plastic materials;

23. Most manufacturing is relatively labour intensive and apart from moulding and injection work, many of the manufacturing activities are hard to automate. This means that

labour costs need to be kept low in order to remain competitive. It also means that firms need to have access to a steady stream of workers. To achieve this, some firms have already moved out of traditional manufacturing areas in the PRD to locations such as Shaoguan, and to other mountainous areas of Guangdong from which semi-rural labour can be more easily sourced at cheaper rates. However, the new locations are comparatively far from Hong Kong ports, making logistics less convenient and more costly. Logistics costs and proximity considerations need to be carefully weighed against cost of labour and access to workers. With the upsurge of production costs in the Mainland, some Hong Kong enterprises plan to further relocate the production base to lower-cost regions such as southeast Asia;

24. Contract manufacturing of toys is considered a commodity business and companies that only do OEM are likely to have limited life, limited profits, or limited growth unless they have additional or superior services to offer to their customers. Such companies face fierce price competition unless they find ways to add value by superior performance or through bundled services;

25. Hong Kong companies face challenges from changes in markets, powerful buyers and license holders, increasing competition, increased costs associated with rising wage rates and input costs, the appreciation of the RMB, the implementation of the Labour Contract Law, and shifts in policies on export processing;

26. Developing branded products is a strategy to add value that is being followed by an increasing number of Hong Kong firms. Some are self-branding in the Hong Kong and Mainland markets while co-branding with leading firms in other markets such as the US. Co-branding allows the Hong Kong firm to gain quick access to large markets alongside known and respected brands, knowledge that may help the firm build its own brands in other markets, and the opportunity to perform other activities and services (such as OEM manufacturing) for its cobranding partners;

27. Improving product design and applying upgraded technology are other ways for Hong Kong firms to add value. In the PRD, the technology in the toy industry is already quite advanced, but Hong Kong firms have dealt more extensively and over a longer period of time than most competitors with international firms that require manufacturing to be done to global standards and in compliance with stringent requirements. Some Hong Kong firms have engaged in technology reengineering projects to maintain their competitive edge, others have focused on combining engineering excellence and design capabilities to build new features into the products;

28. Hong Kong toy makers are looking to enter the Chinese market in order to tap into demand associated with the estimated 252 million children aged fourteen and under. Many Hong Kong firms have entered in a small way to learn more about consumer requirements in China and how they differ from those in traditional markets. However, selling into China is not easy. Obstacles to Hong Kong toy manufacturers entering the China market include an immature market structure, poorly established or inaccessible distribution channels, unclear regulations, under-the-table practices, and difficulty collecting on invoices;

29. A series of fiscal and taxation incentives have been launched by Mainland government to encourage the relocation, transformation and upgrade of local enterprises including those owned by Hong Kong people. This policy is coupled with the strategic focus given to expand the demand of domestic consumption under the 12th Five-year Plan. Hong Kong companies may consider entering the Mainland market by selling higher-end products as well as developing their own brands and retail business;

30. Some Mainland plastics and toys enterprises have successfully penetrated into the domestic market for selling higher-end products as well as developing brands and retail business. It is noted that these enterprises have the intention to commission Hong Kong companies to undertake ODM production for their branded products. Hong Kong companies that want to focus on production may keep an eye on business opportunities arising from increasing outsourcing by Mainland enterprises in the course of transformation;

31. Facing the growing production competitiveness of Mainland China and neighbouring regions, Hong Kong companies may consider to make use of these upgraded production capacity by outsourcing their orders to enhance their overall productivity. On the other hand, they can focus on development of other areas where Hong Kong enterprises have more competitive advantages such as product design, customer services and international marketing. Under such circumstances, they may have extra ability to develop new product lines and increase the product mix, and even go further to develop their brand business and try to open up retail channels at the Mainland market; and

32. The rapid development and adoption of e-revolution in materials purchasing, production management, merchandise, banking and other financial services have fostered Hong Kong's role as a leading sourcing and business centre in the world markets particularly for plastics products.

SECTION I

INTRODUCTION

The Plastics Training Board

1.1 The Plastics Training Board of the Vocational Training Council is required by its terms of reference to determine the manpower and training needs of the plastics industry and to make recommendations to the Council for the development of training facilities to meet such needs. The Plastics Training Board comprises members nominated by major trade associations, trade unions, professional bodies, educational/training institutions and government departments. Membership and Terms of Reference of the Plastics Training Board is at Appendix I and II respectively.

The Manpower Survey

1.2 In pursuance of its terms of reference, the Training Board conducted a survey of the plastics industry during the period from 18 July to 17 September 2011 to collect up-to-date manpower information with a view to assessing the industry's manpower structure and training needs. The survey was carried out with the assistance of the Census and Statistics Department (C & SD).

1.3 The following information was collected from the survey:

(i) the number of employees at the time of the survey;

(ii) employers' forecast of the total number of employees by September 2012;

(iii) the number of existing vacancies;

(iv) the number of employees under training;

(v) the average monthly income of employees; and

(vi) employers' views on the preferred education, training mode and training period of employees by job level.

1.4 Employers were also requested to provide information on the number of technologists, technicians and craftsmen who had been deployed to work outside Hong Kong for more than 6 months during the 12 months prior to the survey.

1.5 Employers were further requested to provide information on the number of Mainland workers working in operations in Guangdong Province under their control. Information of the number of Mainland engineers and their forecast number after 12 months in such operations were also requested.

Scope of the Survey

1.6 The survey covered the following sectors of the plastics industry:

I. Sector A : Plastics Manufacturing and Trading

(i) Manufacture of plastic toys (HSIC 324300);

(ii) Manufacture of plastic domestic utensils (HSIC 222200);

(iii) Manufacture of plastic cases and parts (HSIC 222400);

(iv) Manufacture of plastic bags (excl. handbags) (HSIC 222300);

(v) Manufacture of plastic products not elsewhere classified (HSIC 222901, 222902, 222999);

(vi) Import & export of toys (HSIC 451444, 451445, 452444, 452445);

(vii) Import & export of plastic products, decorative ornaments and flowers (HSIC 451451, 452451); and

(Note: HSIC denotes Hong Kong Standard Industrial Classification.)

II. Sector B : Plastics Manufacturing Services

Testing centres, major plastic resin suppliers and design firms of plastic products. (These firms are not classified under the HSIC system).

1.7 The majority of the plastics manufacturing firms had been re-classified as plastics trading firms by the C & SD after the shifting manufacturing facilities outside Hong Kong in the 1990's. Ever since the 1997 manpower survey, the Training Board combined the plastics manufacturing sector and the plastics trading sector into the plastics manufacturing and trading sector.

Sampling Methodology

Plastics Manufacturing Sector

1.8 According to the information provided by the C & SD, there were 430 establishments in the plastics manufacturing sector at the first quarter of 2011. In view of the limited resources available, a stratified random sampling method was adopted to select 206 establishments for surveying.

Plastics Trading Sector

1.9 Since it was unlikely that trading firms with employment size below 5 would employ technical staff, it was decided the survey should only cover firms with employment size of 5 or above. For the plastics trading sector, a total of 2 034 establishments with size of 5 or above were recorded by the C & SD. A stratified random sampling method was used to select 552 establishments as samples for the 2011 manpower survey.

Plastics Manufacturing Services Sector

1.10 There was no specific classification for the plastics manufacturing services sector under the existing Hong Kong Standard Industrial Classification (HSIC) System. Reference was made to the Directory of Plastics Industry published by the Hong Kong Productivity Council in selecting testing centres, major resin suppliers and design firms of plastics products to be covered in the survey. As a result, a total of 201 establishments were selected.

Overall

1.11 Based on the above methodology, a total of 959 establishments were selected for the survey to cover all sectors of the plastics industry.

Method of the Survey

1.12 About one week before the survey, a covering letter from the Chairman of the Plastics Training Board together with the survey questionnaires and relevant supporting documents (Appendix IIIA & B) were sent to the selected establishments. During the fieldwork, interviewers from the C & SD contacted the establishments to answer queries and assist in the completion of questionnaire if required. They might also visit the selected companies by appointment to collect the completed questionnaires.

1.13 After the survey, the completed questionnaires were checked and, where necessary, verified with the respondents before being processed by the C & SD. The collected data from the plastics manufacturing and trading sector were statistically grossed up and the data from the plastics manufacturing services sector were added together to give the overall picture of the manpower situation of the plastics industry at the time of the survey.

Response to the Survey

1.14 Ten additional establishments participated in the survey unexpectedly during the fieldwork visits. Of the 969 establishments, 604 supplied the required information. A total of 325 establishments had either closed, moved, merged with other establishments, employed no technical manpower or no longer engaged in work related to the plastics industry. The remaining 40 establishments had declined to supply any information. The effective response rate was 93.8%.

The Report

1.15 This report presents the findings of the survey, the Training Board's forecast of the manpower needs of the plastics industry and recommendations on measures to meet these needs. In the report, the terms "workforce", "employees" refer to the total number of persons (excluding trainees and apprentices) employed in the 37 principal jobs of plastics and related disciplines in the plastics industry; the term "trainees" includes all trainees receiving any form of training and apprentices undergoing an apprenticeship.

Principal Jobs

1.16 The list of 37 principal jobs adopted in the survey of the plastics industry and their job descriptions are shown in Appendix IIIC.

SECTION II

SUMMARY OF SURVEY FINDINGS

Number of Employees Employed

2.1 The survey revealed that at the time of survey in 2011, a total of 9 845 employees were employed in the principal jobs of the plastics industry in Hong Kong. Their distribution by job level is:

Job Level	Number of Employees	Percentage of Total Employed
Technologist	4 097	41.6%
Technician	3 652	37.1%
Craftsman	386	3.9%
Operative	907	9.2%
Unskilled	803	8.2%
Total	9 845	100.0%

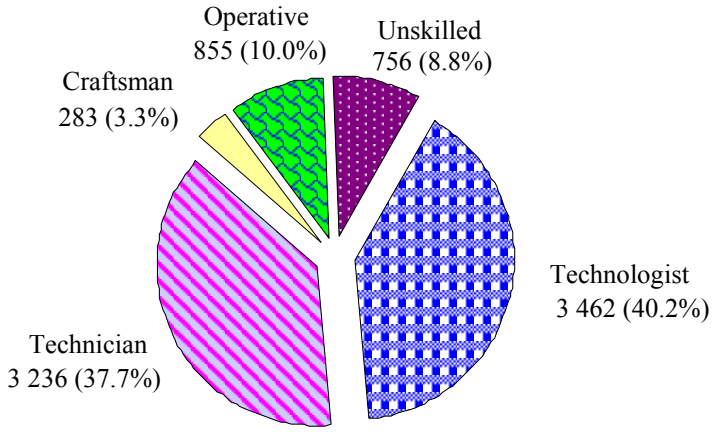
2.2 The distribution of employees by job level and by sector is given in Table A and Figure 1 below:

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

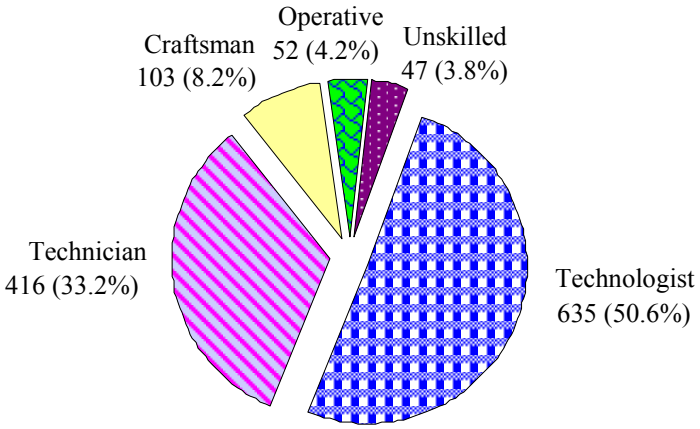
Job Level	Sector A Manufacturing & Trading Sector			Sector B Manufacturing Services Sector	All Sectors
	Manufacturing	Trading	Total		
Technologist	152	3 310	3 462	635	4 097
Technician	194	3 042	3 236	416	3 652
Craftsman	195	88	283	103	386
Operative	763	92	855	52	907
Unskilled	313	443	756	47	803
Total	1 617	6 975	8 592	1 253	9 845

Figure 1 : Manpower by Job Level

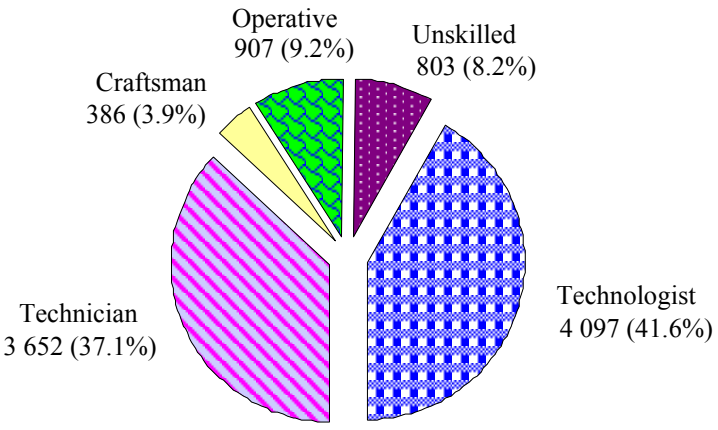
Sector A : Manufacturing and Trading Sector (8 592 employees)



Sector B : Manufacturing Services Sector (1 253 employees)



All Sectors : 9 845 employees



Number of Trainees

2.3 At the time of the survey, there were 6 trainees and their distribution by job level is given in Table B below.

Table B: Distribution of Trainees by Job Level

Job Level	Number of Trainees	Percentage of Total Employed at the Same Level
Technologist	3	0.1%
Technician	0	0%
Craftsman	1	0.3%
Operative	2	0.2%
Total	6	0.1%

Vacancies

2.4 Employers reported a total of 151 vacancies, representing about 1.5% of the total workforce at the time of the survey:

Table C: Distribution of Vacancies by Job Level

Job Level	Number of Vacancies	Percentage of Total Employed at the Same Level
Technologist	44	1.1%
Technician	59	1.6%
Craftsman	7	1.8%
Operative	21	2.3%
Unskilled	20	2.5%
Total	151	1.5%

Number of Vacancies at Time of Survey and Forecast of Number of Employees by September 2012

2.5 Of the 151 vacancies, 44 were at the technologist level, 59 at the technician level, 7 at the craftsman level, 21 at the operative level and 20 at the unskilled level. The comparison of vacancies with existing workforce by job level is shown in Figure 2.

2.6 According to employers' forecast, the industry would be employing a total of 9 973 employees of the five job levels by September 2012. A comparison of employment situation at time of survey and the employers' forecast of number of employees by September 2012 by job level is shown in Table D and Figure 3.

Table D: Comparison of Existing Employment Situation and Employers' Forecast in the Number of Employees by September 2012

Job Level	No. of Employees at Time of Survey (a)	No. of Vacancies at Time of Survey (b)	No. of Employees and Vacancies at Time of Survey (a) + (b)	Employers' Forecast of No. of Employees by September 2012 (c)	Employers' Expected Changes in Manpower {(c) ÷ [(a) + (b)] – 1}x 100%
Technologist	4 097	44	4 141	4 141	0%
Technician	3 652	59	3 711	3 708	-0.1%
Craftsman	386	7	393	388	-1.3%
Operative	907	21	928	917	-1.2%
Unskilled	803	20	823	819	-0.5%
Total	9 845	151	9 996	9 973	-0.2%

Figure 2: Comparison of Vacancies with Existing Workforce by Job Level

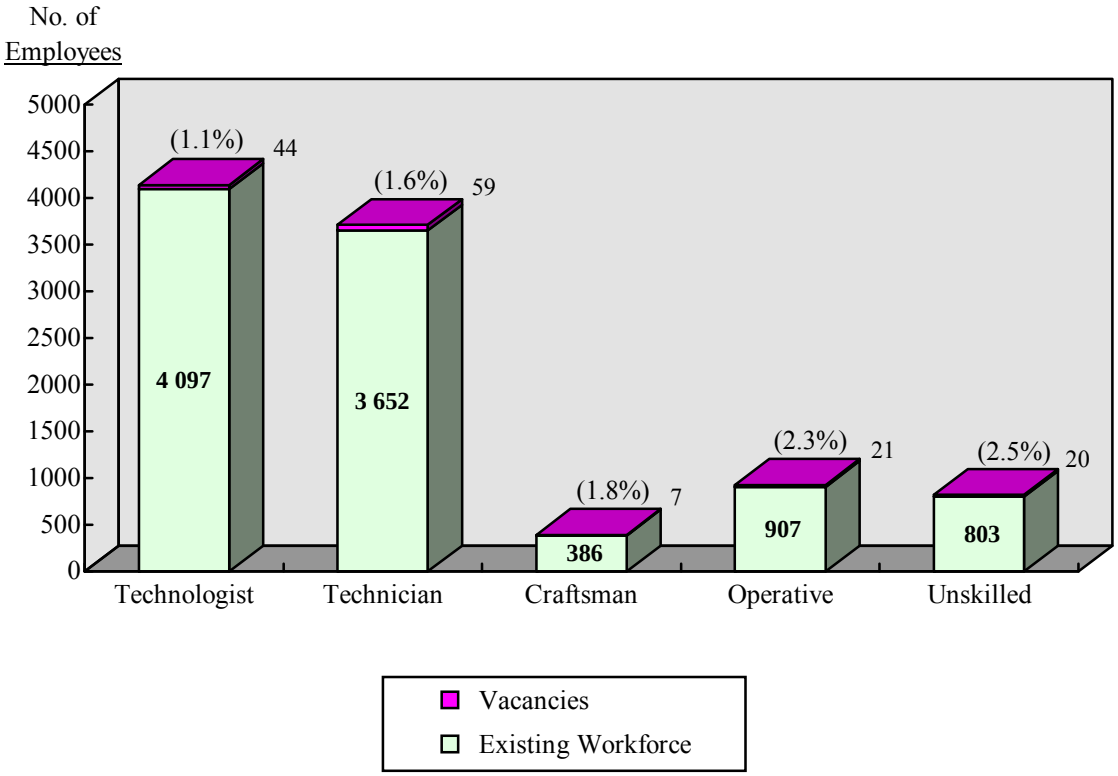
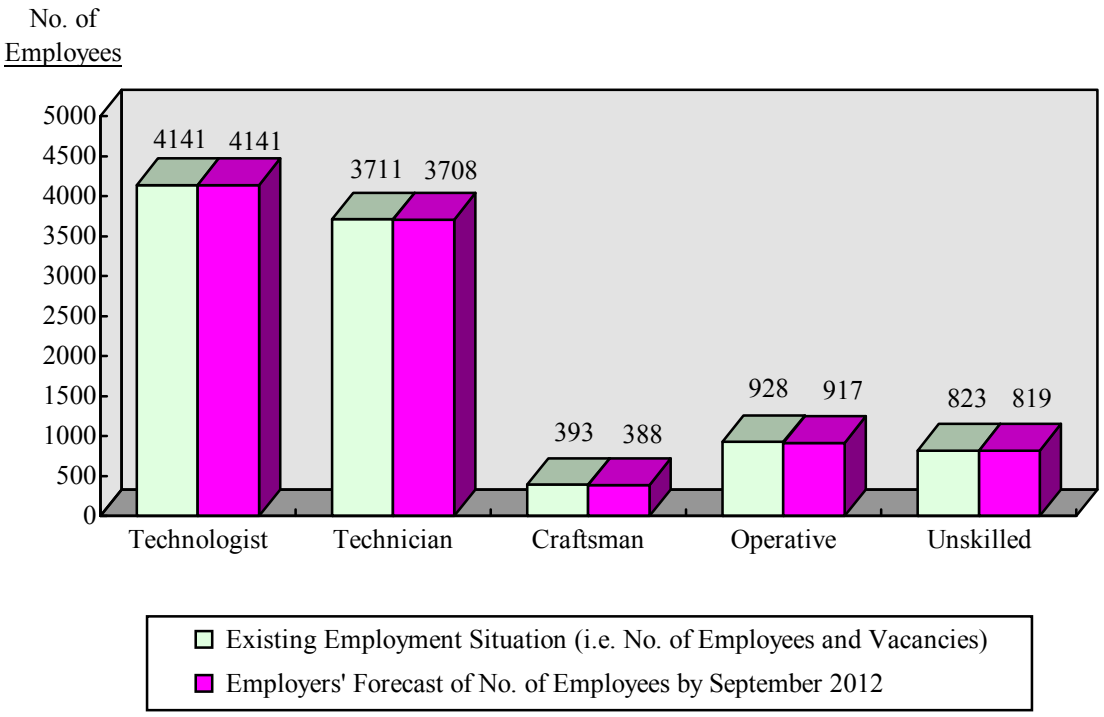


Figure 3: Comparison of Existing Employment Situation and Employers' Forecast in the Number of Employees by September 2012



Monthly Income Range of Workers

2.7 There was a revision in monthly income ranges in this survey since the Statutory Minimum Wage came in force on 1 May 2011. The distribution of employees by monthly income ranges by job level is detailed in Table E below, and by principal job in Table 4 of Appendix IV.

Table E: Distribution of Employees by Monthly Income Range by Job Level

Job level	Under $7,501	$7,501-$10,000	$10,001-$15,000	$15,001-$20,000	Over $20,000	Unspecified	Sub-total
Technologist	23	18	209	1 244	2 078	525	4 097
Technician	19	59	1 494	1 365	262	453	3 652
Craftsman	75	106	145	41	11	8	386
Operative	142	570	152	2	0	41	907
Unskilled	209	519	44	0	0	31	803
Total	468	1 272	2 044	2 652	2 351	1 058	9 845

Preferred Education, Training Mode and Training Period of Employees

2.8 The views of employers on the preferred education, training mode and training period for their employees at the technologist, technician and craftsman levels are given in Table F below:

Table F: Employers' Views on Preferred Education, Training Mode and Training Period

Job Level	Preferred Education	Preferred Training Mode	Preferred Training Period
Technologist	Degree / Higher Diploma	On-the-job training	from (2 - 3 years) to 4 years or above
Technician	Higher Diploma / Diploma	On-the-job training	from (2 - 3 years) to (3 - 4 years)
Craftsman	Craft Certificate / Secondary 5 - 7	On-the-job training	from (1 - 2 years) to (3 - 4 years)

Number of Internal Promotions

2.9 In the twelve months prior to the survey, a total of 24 employees were promoted to higher level jobs. The distribution of these employees in each job level is shown in Table G below:

Table G: Internal Promotion within the Establishments

Promotion From	No. of Employees Promoted	% of Employees at the Promoted Level
Technician to Technologist	16	0.4%
Craftsman to Technician	1	0.03%
Operative to Craftsman	7	1.8%
Total	24	-

Technical Staff Working Outside Hong Kong

2.10 In the twelve months ending September 2011, 428 technologists, 231 technicians and 2 craftsmen had worked for more than 6 months outside Hong Kong. Distribution among the sectors of the plastics industry is shown in Table H below. They represented 10.5%, 6.3% and 0.5% of the total workforce at the respective job levels.

Table H: Technical Staff Working Outside Hong Kong

	Technologist	Technician	Craftsman
Plastics Manufacturing and Trading Sector	396	225	2
Plastics Manufacturing Services Sector	32	6	0
All Sectors	428	231	2

Workers Working in Operations in Guangdong Province

2.11 At the time of the survey, employers reported a total of 541 568 Mainland workers were employed in their operations in Guangdong province. Among them, 5 735 were engineers. Employers also forecasted the number of such engineers will be increased to 5 797 by September 2012, representing an increase of about 1.1% of the workforce at that job level. It should be noted that many respondents in this survey either had no idea, or were unsure of the manpower figures in their Mainland establishments. Hence, the above figures may not be accurate.

Total Number of Persons Employed by the Plastics Industry in Hong Kong

2.12 At the time of the survey, a total of 17 175 persons of other disciplines were employed by the plastics industry in Hong Kong. They were mainly clerical workers and logistic support workers. Altogether, the plastics industry employed a total of 27 020 persons (i.e. 9 845 in plastics and related disciplines and 17 175 in other disciplines) in Hong Kong at the time of the survey.

Statistical Tables

2.13 The detailed manpower statistics of the plastics industry by sector, by job level and by principal job including number of trainees, vacancies and employers' forecast number of employees by September 2012 are tabulated in Tables 1, 2 and 3 of Appendix IV.

SECTION III

CONCLUSIONS

General

3.1 The Training Board has examined the survey findings and considers that the figures generally reflect the actual employment situation of the plastics industry at the time of the survey.

3.2 Starting from the manpower survey in 1997, the scope of the survey has been expanded to cover the plastics trading sector as well as the plastics manufacturing services sector which employs a substantial number of technical manpower. The distribution and comparison of manpower by job level and by sector in 2009 and 2011 are shown in Table 3.A below:

Table 3.A : Distribution and Comparison of Manpower by Job Level and by Sector (Figures from the 2009 Survey shown in bracket)

Job Level	Plastics Manufacturing & Trading Sector			Plastics Manufacturing Services Sector	All Sectors
	Manufacturing	Trading	Total		
Technologist	152 (112)	3 310 (3 303)	3 462 (3 415)	635 (543)	4 097 (3 958)
Technician	194 (184)	3 042 (2 812)	3 236 (2 996)	416 (303)	3 652 (3 299)
Craftsman	195 (201)	88 (131)	283 (332)	103 (83)	386 (415)
Operative	763 (891)	92 (67)	855 (958)	52 (55)	907 (1 013)
Unskilled	313 (251)	443 (380)	756 (631)	47 (55)	803 (686)
Total	1 617 (1 639)	6 975 (6 693)	8 592 (8 332)	1 253 (1 039)	9 845 (9 371)

Changes in Manpower in various Sectors of the Plastics Industry

3.3 The plastics manufacturing sector embraces three main branches, viz. toys, utensils/cases and parts, as well as other miscellaneous products. The survey reveals that the workforce of the plastics manufacturing sector had slightly declined from 1 639 workers in 2009 to 1 617 workers in 2011; representing a shrinkage of about 1.4% over the past two years. The manpower changes by job level and by branch of the plastics manufacturing sector are shown in Table 3.B below:

Table 3.B : Manpower Changes by Job Level and by Branch of the Plastics Manufacturing Sector

Job Level	Branch 1 (Manufacture of Plastic Toys)		Branch 2 (Manufacture of Plastic Domestic Utensils, Cases and Parts)		Branch 3 (Manufacture of Plastic Bags (excl. Handbags), Plastic Products not elsewhere classified)		Total in the Plastics Manufacturing Sector	
	2009	2011	2009	2011	2009	2011	2009	2011
Technologist	15	14	34	31	63	107	112	152
Technician	13	15	61	48	110	131	184	194
Craftsman	39	22	51	38	111	135	201	195
Operative	140	127	160	115	591	521	891	763
Unskilled	29	44	85	64	137	205	251	313
Total	236	222	391	296	1 012	1 099	1 639	1 617

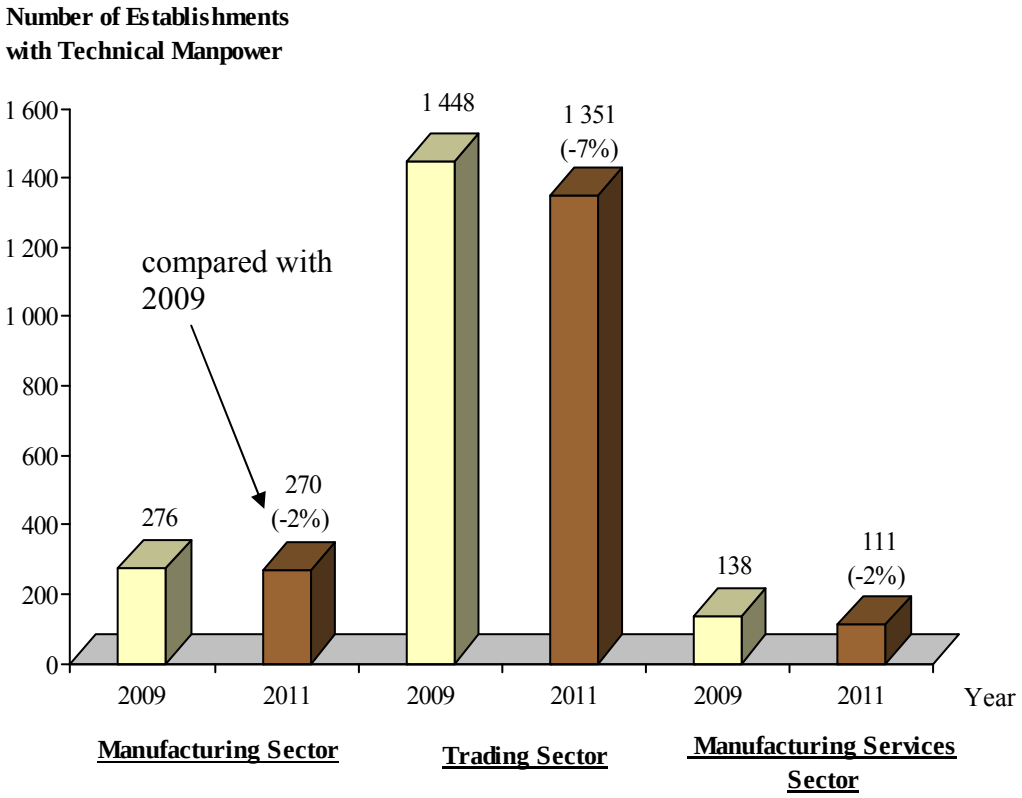
3.4 The Training Board considers that the manpower shrinkage in the plastics manufacturing sector is directly related to the decreasing number of establishments in that sector. During the time of survey (i.e. July to September of 2011), there were 270 establishments employing technical manpower in the plastics manufacturing sector. Compared with the figure of two years ago, i.e. 276 establishments in 2009, a 7% drop was found (Figure 3.A). The decline could be attributed to the following:

(i) More and more manufacturing firms which employed a certain number of technical manpower were re-classified as trading firms according to the practice of C & SD after knowing their production facilities and production work had been shifted outside Hong Kong.

(ii) 90% of the establishments in the plastics manufacturing sector belong to small-sized business. Some of them failed to survive the global business downturn in recent years.

(iii) Many owners of these small-sized establishments had been entering their retirement ages. Without finding suitable successors, their business had to cease.

Figure 3.A : Estimated Number of Establishments of the Plastics Industry Employing Technical Manpower in 2011



3.5 The plastics trading sector comprises two main branches – import & export of toys and import & export of plastics products, decorative ornaments and flowers. This sector is the major employer of technical manpower in the plastics industry as it employs about 79% of the workforce of the plastics industry at the technologist, technician and craftsman levels. Compared with the figures in 2009, the present survey shows that the total workforce of the plastics trading sector has a mild growth (+4%) over the past two years. It is also observed that the workforce at the technologist level records a 0.2% slight increase, from 3 303 in 2009 to 3 310 in 2011. The workforce at technician level shows an 8.2% increase, from 2 812 in 2009 to 3 042 in 2011. At the craftsman level, the workforce drops 32.8%, from 131 in 2009 to 88 in 2011. The manpower changes by job level and by branch of the plastics trading sector are shown in Table 3.C below:

Table 3.C : Manpower Changes by Job Level
and by Branch of the Plastics Trading Sector

Job Level	Branch 4 Import & Export of Toys		Branch 5 Import & Export of Plastic Products, Decorative Ornaments and Flowers		Total in the Plastics Trading Sector	
	2009	2011	2009	2011	2009	2011
Technologist	2 424	2 440	879	870	3 303	3 310
Technician	2 133	2 346	679	696	2 812	3 042
Craftsman	110	53	21	35	131	88
Operative	67	66	0	26	67	92
Unskilled	130	229	250	214	380	443
Total	4 864	5 134	1 829	1 841	6 693	6 975

3.6 The Training Board considers that the above changes in manpower of the plastics trading sector were mainly due to the following:

(i) The Hong Kong operations mainly involved in work relating to product design and development, project engineering and logistic support for operations in Mainland China. As such work requires technical staff of higher calibre, more employees at technician or higher levels were required.

(ii) It has been a trend that Hong Kong students are now receiving more educations before leaving school. The supply of craftsmen diminished while there were more and more Diploma / Higher Diploma graduates entering the technician level market. Due to the sufficient supply, the workforce at technician level increased, as being reflected in the survey.

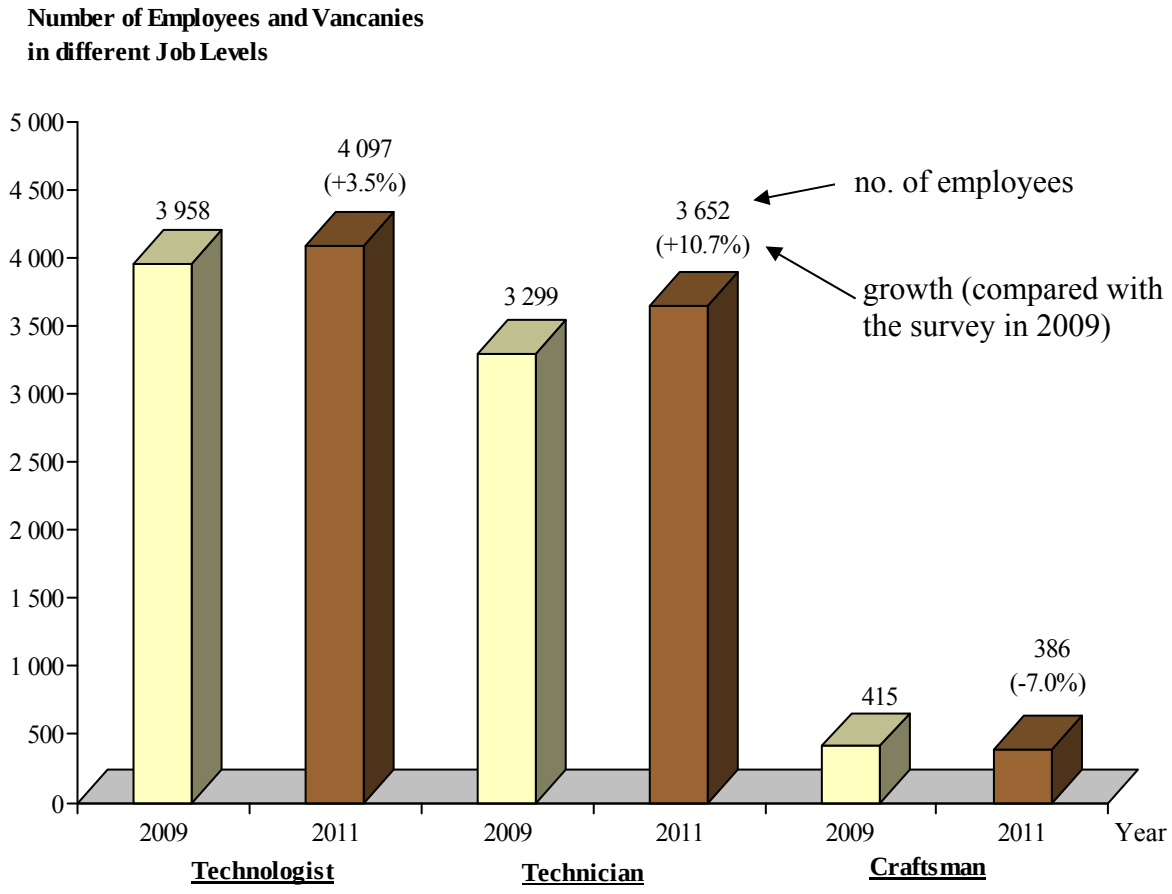
(iii) Although employers also welcomed technologists, many of them were looking for candidates with problem-solving techniques and system integration knowledge which could only be accumulated through years of working experience. Fresh graduates might not meet the expectation of employers. The workforce at technologist level remained stable.

(iv) After the massive relocation of production facilities outside Hong Kong over the past three decades, craftsman level jobs have been largely taken over by Mainland local workers. The 32.8% drop of manpower at this job level is not surprising.

3.7 The plastics manufacturing services sector takes up about 13% of the workforce in the plastics industry. Its workforce rose about 21% in the past two years (i.e. from 1 039 in 2009 to 1 253 in 2011). The number of technologists and technicians grew about 17% and 37% respectively, compared with the figures in 2009. The number of craftsmen employed in this sector increased from 83 in 2009 to 103 in 2011.

Manpower Analysis by Job Level

Figure 3.B : Comparing the Number of Employees at Different Job Levels in 2009 and 2011



3.8 The overall technologist workforce recorded an increase of 3.5% over the past two years. Among the 9 principal jobs at technologist level, product engineer (plastics) and manufacturing/industrial engineer dropped about 19% and 7% respectively while the other 7 increased ranging from 1.3% to 30%. In particular, the number of Q.C./Q.A. engineer, CAD-CAM engineers/tooling engineer and electronics/electrical engineer increased by 19%, 21% and 30% respectively. Nowadays, technologists are expected to have a wide exposure and knowledge on the whole manufacturing process, instead of merely specializing in one particular technical area.

3.9 At the technician level, the overall workforce of the industry recorded an increase of 10.7% over the past two years. Continuing their growing over the past years, the number of Q.C./Q.A. technician, laboratory/materials technician and production planner kept on increasing by 18%, 36%, 45% respectively from 2009 to 2011. These increases were

particularly prominent in the "Import & Export of Toys" sector which reflected that toys manufacturers were investing more resources to strengthen product testing and environmental packaging in order to comply with safety/environmental regulations of overseas markets. Contrary to the overall manpower increase, the survey recorded severe drops in the number of mechanical engineering technician and CAD-CAM technician (tooling), namely 34% and 54% respectively. The declines in these principal jobs could be attributed to the fact that Hong Kong employees' plant-floor technical jobs have been gradually taken over by Mainland workers.

3.10 At the craftsman level, the overall workforce recorded a continued drop of about 7% during the past two years. Nearly all jobs except tailor (plastics/fabric) and quality control inspector at this level experienced declines. In particular, the number of electrician, plastics machine setter, and tools and die makers, dropped 43%, 48% and 50% respectively. After the massive relocation of production facilities outside Hong Kong over the past three decades, craftsman level jobs have been largely taken over by Mainland workers.

Business Outlook

3.11 The plastics industry has been encountering a number of continuous challenges especially the coming uncertainty of global economy in terms of possible recession in Europe and anaemic growth in the emerging-market economies. Nevertheless, Hong Kong companies have responded by pursuit of transformation and upgrade of their enterprises. They are strengthening their production capacity and quality to move towards the medium and high-end markets;

3.12 Owing to the continuous shocks from Euro area and slow growth in the US, the moves of Hong Kong remaining manufacturing firms to the Mainland China and other countries may be accelerated. For firms already in the Pearl River Delta area, moving to less developed parts of Mainland and nearby countries may reduce their labour costs and allow them to find semi-skilled workers. However, the enterprises may have difficulties in retaining and finding skilled technicians and management, as well as increase of transportation and other costs;

3.13 In the past years, China's central bank has allowed the RMB to appreciate against the US dollar by about 21%. However, China halted appreciation of the RMB when the effects of the global economic crisis became apparent in 2008. In June 2010, China resumed appreciation of the RMB and allowed the RMB/US dollar exchange rate to rise by about 8% through November 2011. According to the analysis of an economist of the Hong Kong Trade Development Council, production costs of manufacturers go up by 2% when the RMB appreciates by 4% against the US dollar;

3.14 The coastal provinces of Mainland China are facing a labour shortage in these few years as China's economy continues to boom. In 2011, there were lack of about 1 to 2 million workers in Guangdong province according to the estimates of Guangdong officials and media. The factory wages have therefore raised rapidly over the past two years especially for labour-intensive industries;

3.15 The new Labour Contract Law was enacted in Mainland China in 2008. This law has substantially changed the conditions under which workers and employers can enter into contract and has had important effects on the ability of workers to shape their condition of work. Its announcement signalled a shift in the Chinese government's view of low-cost sourcing and low-value export production as the basis for the next round of economic growth in the country. The industry is feeling the effects of the industrial upgrading movement that is being pushed by both the Central and Guangdong Provincial Governments;

3.16 Since the Enterprise Income Tax Law came into effect in 2008 to unify the tax treatment for domestic and foreign enterprises in China, the State Administration of Taxation has released many tax circulars addressing the enforcement and administration of the law. In view of loss of tax holiday and reduced rate benefits, small and medium size Hong Kong manufacturers have gradually adapted to the changes in these few years;

3.17 Product safety is a big challenge for the industry in recent years. The EU and US have introduced more stringent safety standards concerning design, labelling, permissible levels of potentially harmful substances such as phthalates and cadmium. The industry held discussions with relevant officials regarding rules that severely impact on the industry and organised forums and workshops to assist fellow industry people in compliance with the new regulations;

3.18 As the industry is heavily reliant on both plastics and packaging, it also attracts a lot of attention from overseas and Mainland environmentalists concerned about production of large amounts of yet more potential waste, despite industry efforts to use recycled plastic materials;

3.19 Most manufacturing is relatively labour intensive and apart from moulding and injection work, many of the manufacturing activities are hard to automate. This means that labour costs need to be kept low in order to remain competitive. It also means that firms need to have access to a steady stream of workers. To achieve this, some firms have already moved out of traditional manufacturing areas in the PRD to locations such as Shaoguan, and to other mountainous areas of Guangdong from which semi-rural labour can be more easily sourced at cheaper rates. However, the new locations are comparatively far from Hong Kong ports, making logistics less convenient and more costly. Logistics costs and proximity considerations need to be carefully weighed against cost of labour and access to workers. With the upsurge of production costs in the Mainland, some Hong Kong enterprises plan to further relocate the production base to lower-cost regions such as southeast Asia;

3.20 Contract manufacturing of toys is considered a commodity business and companies that only do OEM are likely to have limited life, limited profits, or limited growth unless they have additional or superior services to offer to their customers. Such companies face fierce price competition unless they find ways to add value by superior performance or through bundled services;

3.21 Hong Kong companies face challenges from changes in markets, powerful buyers and license holders, increasing competition, increased costs associated with rising wage rates and input costs, the appreciation of the RMB, the implementation of the Labour Contract Law, and shifts in policies on export processing;

3.22 Developing branded products is a strategy to add value that is being followed by an increasing number of Hong Kong firms. Some are self-branding in the Hong Kong and Mainland markets while co-branding with leading firms in other markets such as the US. Co-branding allows the Hong Kong firm to gain quick access to large markets alongside known and respected brands, knowledge that may help the firm build its own brands in other markets, and the opportunity to perform other activities and services (such as OEM manufacturing) for its cobranding partners;

3.23 Improving product design and applying upgraded technology are other ways for Hong Kong firms to add value. In the PRD, the technology in the toy industry is already quite advanced, but Hong Kong firms have dealt more extensively and over a longer period of time than most competitors with international firms that require manufacturing to be done to global standards and in compliance with stringent requirements. Some Hong Kong firms have engaged in technology reengineering projects to maintain their competitive edge, others have focused on combining engineering excellence and design capabilities to build new features into the products;

3.24 Hong Kong toy makers are looking to enter the Chinese market in order to tap into demand associated with the estimated 252 million children aged fourteen and under. Many Hong Kong firms have entered in a small way to learn more about consumer requirements in China and how they differ from those in traditional markets. However, selling into China is not easy. Obstacles to Hong Kong toy manufacturers entering the China market include an immature market structure, poorly established or inaccessible distribution channels, unclear regulations, under-the-table practices, and difficulty collecting on invoices;

3.25 A series of fiscal and taxation incentives have been launched by Mainland government to encourage the relocation, transformation and upgrade of local enterprises including those owned by Hong Kong people. This policy is coupled with the strategic focus given to expand the demand of domestic consumption under the 12th Five-year Plan. Hong Kong companies may consider entering the Mainland market by selling higher-end products as well as developing their own brands and retail business;

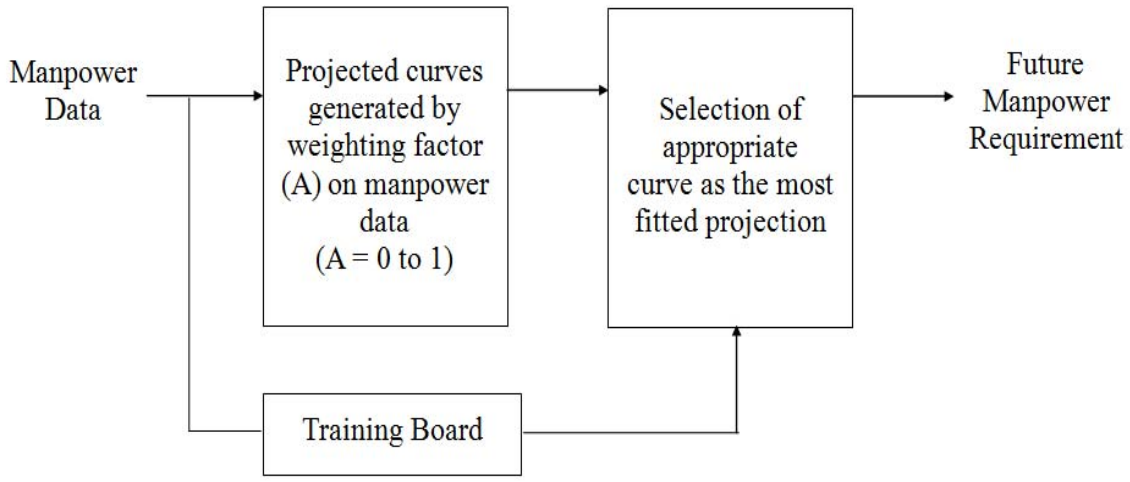
3.26 Some Mainland plastics and toys enterprises have successfully penetrated into the domestic market for selling higher-end products as well as developing brands and retail business. It is noted that these enterprises have the intention to commission Hong Kong companies to undertake ODM production for their branded products. Hong Kong companies that want to focus on production may keep an eye on business opportunities arising from increasing outsourcing by Mainland enterprises in the course of transformation;

3.27 Facing the growing production competitiveness of Mainland China and neighbouring regions, Hong Kong companies may consider to make use of these upgraded production capacity by outsourcing their orders to enhance their overall productivity. On the other hand, they can focus on development of other areas where Hong Kong enterprises have more competitive advantages such as product design, customer services and international marketing. Under such circumstances, they may have extra ability to develop new product lines and increase the product mix, and even go further to develop their brand business and try to open up retail channels at the Mainland market; and

3.28 The rapid development and adoption of e-revolution in materials purchasing, production management, merchandise, banking and other financial services have fostered Hong Kong's role as a leading sourcing and business centre in the world markets particularly for plastics products.

Future Manpower Demand

3.29 Prior to the 1997 manpower survey, the Adaptive Filtering Method (AFM) was adopted to generate a set of projections on the industry's future manpower demand. The AFM is a 'curve fitting' method for trend analysis. It is illustrated in the following diagram:

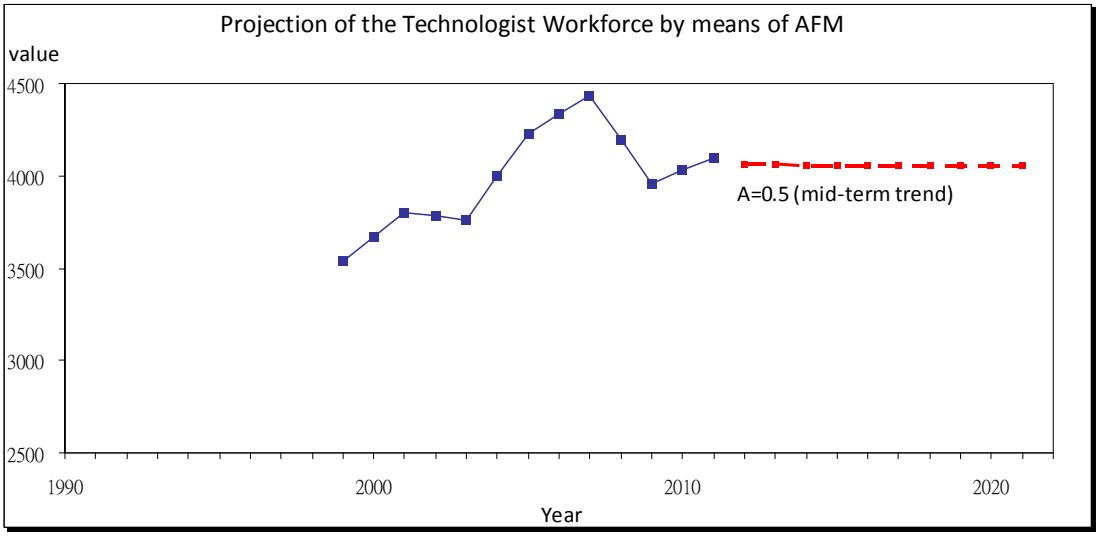


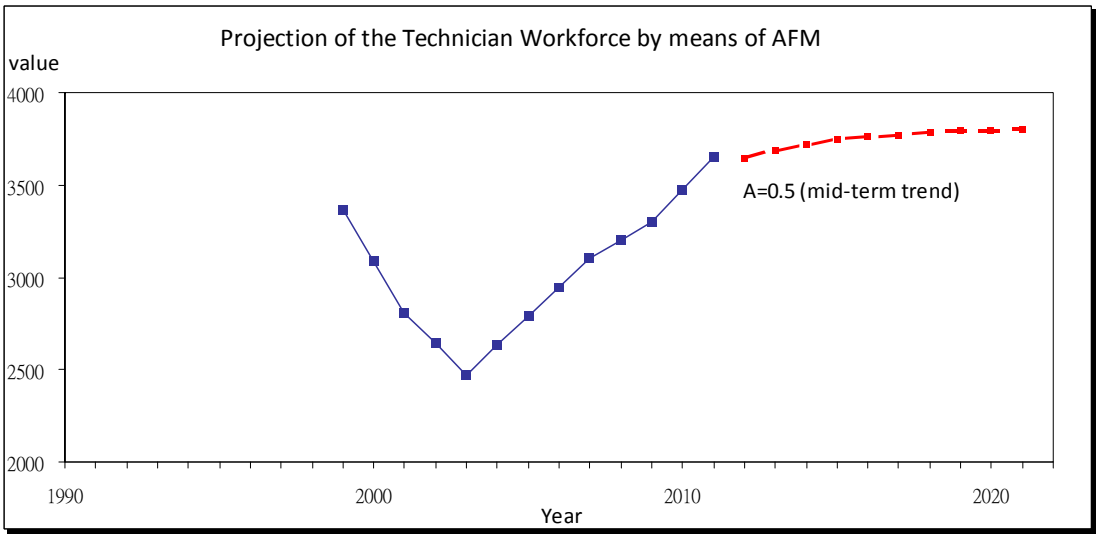
Past survey data are weighted. Weighting factor (A) controls whether a long term trend or a short term trend is favoured. The higher the value of (A), the heavier the weighting of the recent survey data (i.e. bias to the short term trend). The Training Board considers factors such as market trends, technological developments, and other social-economical changes in order to select an appropriate value of (A), hence to decide the manpower projection of a job level.

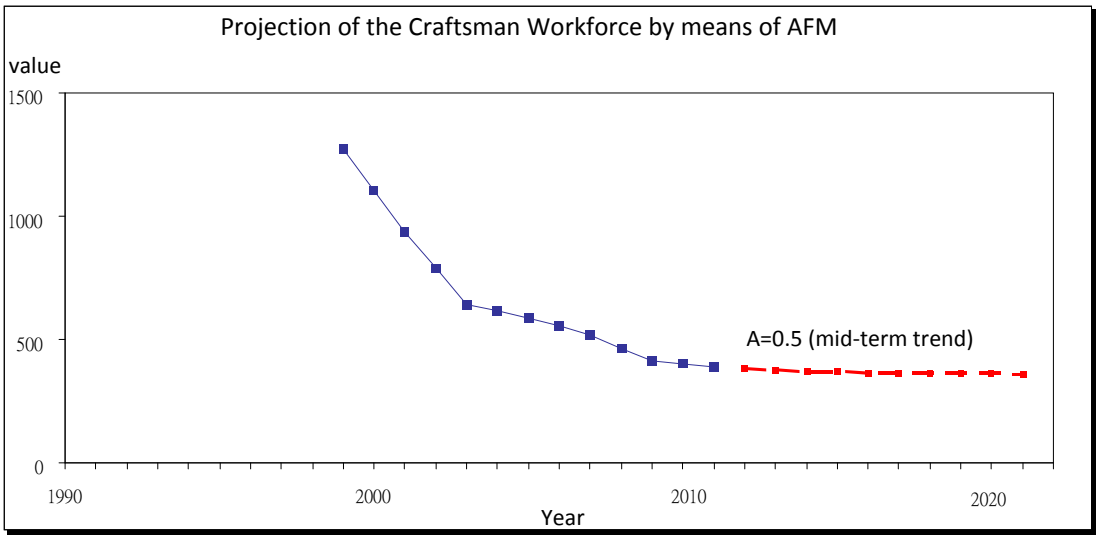
3.30 Starting from the 1997 manpower survey, the Training Board decided that the survey scope should be expanded and that the plastics manufacturing and trading sector should be viewed jointly in assessing the future trend and manpower demand. Since the survey scope changed, the AFM was no longer applicable. Instead, reference was made to employers' one-year forecast to project the future manpower requirements of the industry. This methodology was adopted for future manpower projections in the manpower surveys conducted in 1997, 1999, 2001, 2003 and 2005.

3.31 In the attempt to adopt the Labour Market Analysis (LMA) approach to generate manpower projections for the plastics industry, proper correlation could not be established after testing relevant key determinants of the plastics industry. It was concluded that the LMA approach was not applicable for manpower projections for the present survey. As the present survey was the eighth survey after the scope revision and that the AFM was considered to be a trend analysis projection method which should be more scientific when compared with the employers' one-year forecasts method, the Training Board therefore decided that the AFM be adopted for the manpower projection of the present survey. The projections are illustrated in the following graphs:

Figure 3.C : Projection of Workforce at Different Job Levels with AFM







3.32 To assist the Training Board in establishing the wastage rates (i.e. workers leaving the industry due to reasons of retirement, emigration, changing employment to other fields) for technologists, technicians and craftsmen, a small scale postal Survey on the Reasons of Resignation of Technical Employees in the Plastics Industry had been conducted some years ago. After evaluation on the findings of the survey, the Training Board decided that wastage rates of 5% for technologists, 4% for technicians and 4% for craftsmen be adopted for manpower projection.

3.33 Based on the decisions mentioned in paragraphs 3.31 and 3.32, the Training Board's estimates of the average annual training demand for workers by the industry to cover both growth and wastage at the three job levels for the next four years are given in Table 3.D below:

Table 3.D : Average Annual Training Demand for Workers for the Next Four Years (2012 – 2015)

Job Level	Average Annual Demand
Technologist	175 - 214
Technician	153 - 187
Craftsman	10 -15

A breakdown of the figures into various principal jobs of the plastics industry is given at Appendix V.

3.34 In view of the fact that there are some employees serving in other industries and whose work will be closely related to the plastics field, the Training Board has decided that these manpower should also be made known to the public in the present report. As such manpower has been surveyed by the Metals Training Board and the Electronics and Telecommunications Training Board through their respective manpower surveys, a list showing the number of these workers together with the recommended average annual training demand of these workers proposed by the respective Training Boards is given at Appendix VI.

3.35 The Training Board will conduct another manpower survey in 2013 to update the manpower statistics and review the training requirements of the industry.

Manpower Demand and Supply Analysis

3.36 At the technologist level, the average annual training demand for additional employees with mechanical/manufacturing engineering background is 221 - 270 (i.e. excluding the electronics/electrical engineers in the plastics industry but including the manufacturing/production/industrial engineers from the metals industry and the manufacturing/quality assurance engineers from the electronics industry).

3.37 Based on the information provided by local tertiary institutions and the Vocational Training Council, the planned output of fresh graduates (including First Degree graduates and Higher Diploma graduates) in the mechanical/manufacturing/industrial engineering discipline is summarised in Table 3.E below. It is estimated that there would be some 1 519 fresh graduates in 2012 and 1 194 in 2013 qualified to join the plastics and other industries at the technologist level. Anyway, it should be noted that some employers prefer to recruit higher diploma fresh graduates for technician level jobs. Besides, in recent years, about 30% to 40% of Higher Diploma graduates opt to pursue further studies and obtain First Degree before entering the job market. So, the actual number of fresh graduates entering technologist-level jobs should be smaller than the number shown in Table 3.E.

Table 3.E : Supply of Fresh Graduates at Technologist Level in Mechanical/Manufacturing/Industrial Engineering

Institutions	Award	Estimated No. of Graduates	
		2012	2013
Local Universities	Degree	950	800
	Higher Diploma	50	30
Hong Kong Institute of Vocational Education	Higher Diploma - Commercial Engineering	54	30
	Higher Diploma - Engineering Management	78	47
	Higher Diploma - Mechanical Engineering	198	155
	Higher Diploma - Product Design Engineering	101	70
	Higher Diploma - Product Testing	88	62
	Total	1 519	1 194

3.38 Apart from further studies or emigration, the above fresh graduates can join many industries such as metals, electronics, electrical and services industries other than the plastics. To attract the right calibre of graduates to work in the plastics industry, employers are encouraged to offer attractive terms of employment and provide a good career prospect for these young graduates. Employers are also advised to provide relevant on-the-job and off-the-job training for these graduates in order to upgrade their technical knowledge and skills and to promote a life-long learning culture in their companies.

3.39 At the technician level, supervisors/foremen are usually promoted from experienced leaders or craftsmen, and those electronics/electrical engineering technicians and laboratory/materials technicians are recruited from course graduates of other disciplines. After including those manufacturing/industrial engineering technicians required by the metals industry and the manufacturing/quality assurance technicians required by the electronics industry, the forecast demand for technicians with mechanical/manufacturing/industrial engineering background for the plastics and other industries would be 164 - 201 each year.

3.40 The supply of fresh technician graduates in the mechanical/manufacturing/ industrial engineering discipline is based on the information collected from the Youth College of the Vocational Training Council. The planned output is shown in Table 3.F below. A total of some 46 fresh technician graduates would be available in 2012 and 57 in 2013 to join the plastics and other industries.

Table 3.F : Supply of Fresh Graduates at Technician Level in Mechanical/Manufacturing/Industrial Engineering

Institutions	Award	Estimated No. of Graduates	
		2012	2013
Youth College	Diploma in Vocational Education – Computer-aided Product Engineering	21	17
	Diploma in Vocational Education – Mechanical Engineering	25	40
	Total	46	57

3.41 Similar to the technologists, the technician graduates could join other related industries apart from further studies. The Training Board urges employers to offer good employment terms, career prospect and continual training and up-grading opportunities in order to attract more graduates to join the plastics industry.

3.42 At the craftsman level, mould and die makers, tool and die makers and pattern/model/prototype makers are the trades which require graduates completing mechanical or related craft courses. Including those related craftsmen from the metals and electronics industries, the forecast demand for these jobs is 41 - 51 per year.

3.43 Starting from 2009/2010, secondary school Form 3 leavers could enrol in the Diploma in Vocational Education (DVE) Programme offered by the Youth College of the Vocational Training Council. DVE is a flexible, credit-based programme which prepares students for either employment or further studies. Upon satisfying the credit requirements for a specific award, students will be awarded with the Basic Craft Certificate (BCC), Technician Foundation Certificate (TFC) or DVE award. Holders of BCC can fill the craftsman-level vacancies of the plastics industry while TFC holders can fill the technician-level vacancies.

Table 3.G lists the number of secondary school Form 3 leavers enrolled into the DVE programmes related to Mechanical/Manufacturing/Industrial Engineering. Assuming that on average, students opting for the BCC award complete their studies in one year, part of the DVE intakes in 2011 and 2012 can join the plastics industry as craftsmen in 2012 and 2013. Compared with the projected annual training demand of craftsmen in Table 3.D, it is noted that as long as not less than 10% of the DVE students in Computer-aided Product Engineering stream and Mechanical Engineering stream opt for the BCC award and enter the plastics industry, there is sufficient supply of craftsmen in 2012 and 2013.

Table 3.G : Intakes of Secondary School Form 3 Leavers of DVE Programme related to Mechanical/Manufacturing/Industrial Engineering

Institutions	Programme	Intakes	
		2011	2012
Youth College	Diploma in Vocational Education – Computer-aided Product Engineering	78	60
	Diploma in Vocational Education – Mechanical Engineering	140	120
	Total	218	180

3.44 Trainees from the DVE – Mechanical Engineering stream receive general skill training in the mechanical trade and some of them would take up employment in electrical and mechanical/building services sectors. Employers are encouraged to take on these trainees and provide further in-service training to them to become qualified craftsmen.

SECTION IV

RECOMMENDATIONS

4.1 For more than two decades, one of the most important development of the plastics industry is the relocation and setting up of production facilities in the PRD region. In fact, PRD has become the manufacturing base for Hong Kong firms for all industries including the plastics industry. Firms in Hong Kong are now pursuing the new role as the development and logistic control centres for supporting the PRD operations. Apart from concentrating its effort on marketing and financial activities, the Hong Kong operations are also transforming into innovative design centres, creating both its own brands and designing for its overseas customers. The plastics industry is also making significant contribution to other related industries by supplying plastics parts and components for their products. The continuous progress and development of the plastics industry through upgrading its technical capabilities is no doubt of vital importance to the further development of other related industries. The Training Board is of the view that in addition to investing in advanced technologies such as advanced machinery and software for the development and manufacture of high value-added new products for the global markets, employers of the industry also need an adequate supply of well-trained manpower to sustain its further growth and development.

Annual Intake of Trainees

4.2 At the time of the survey, there were 6 persons receiving various forms of training. Of these, 3 were at the technologist level, 1 at the craftsman level and 2 at the operative level.

4.3 Based on the survey data gathered since 1999 and the AFM, the Training Board recommends the plastics industry to embark on a manpower training programme of a scale set out in Table 4.A below:

Table 4.A : Recommended Number of Trainees to be Taken on Annually for the Next Four Years (2012 to 2015)

Job Level	Recommended Annual Intake
Technologist	175 – 214
Technician	153 – 187
Craftsman	10 – 15

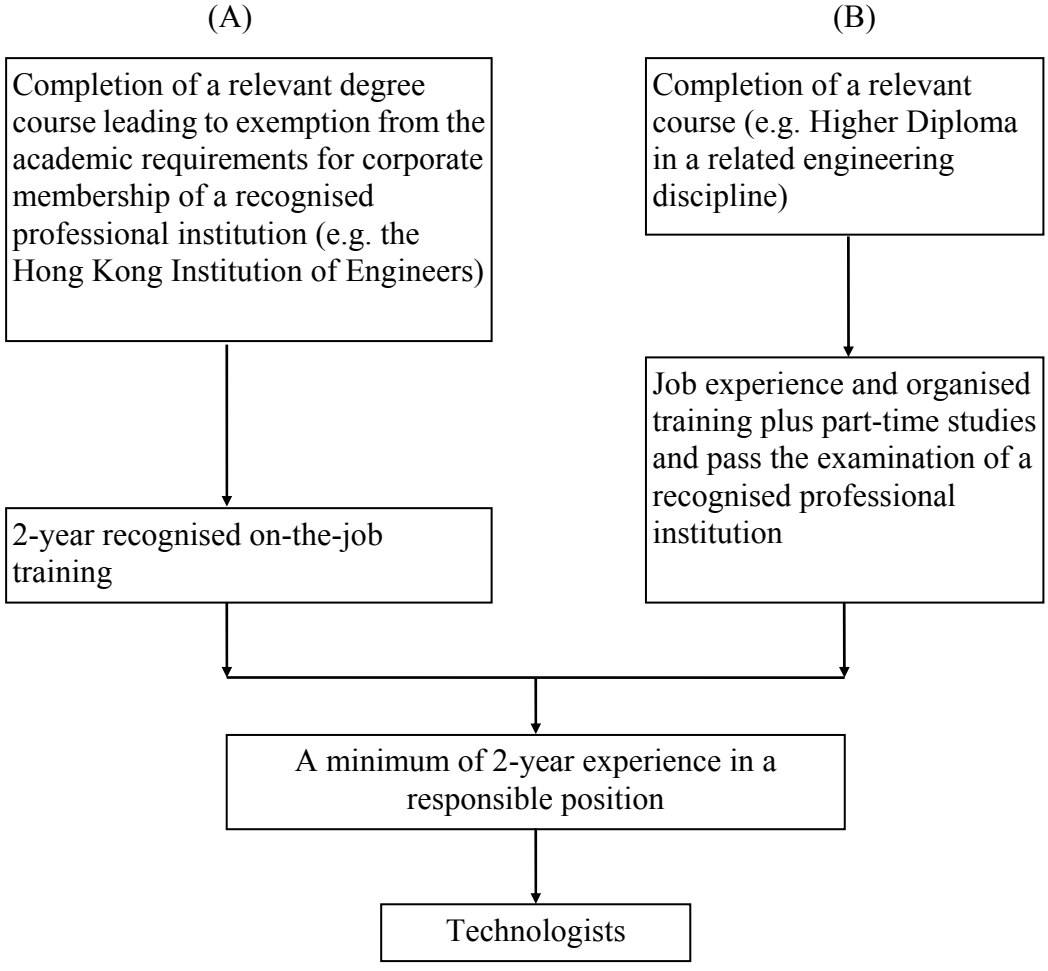
A breakdown of the figures in Table 4.A into various principal jobs is given at Appendix V.

4.4 For manpower planning at the company level, employers are requested to note that the number of trainees set out in Table 4.A, when expressed in terms of existing manpower, represents an average annual intake of about 4.7%, 4.7% and 2.8% respectively of the number of technologists, technicians and craftsmen presently employed.

Training of Technologists

4.5 A technologist is a person who has the qualification and experience equivalent to those required for corporate membership of a professional institution. He/she should be able to use his/her knowledge and skill to initiate practical development work and be competent in analysing and solving a wide range of technical problems. Furthermore, he/she should be able to assume personal responsibility for the development and application of engineering principles, exercise original thinking and judgement, follow progress in his/her branch of technology, apply modern management techniques and supervise and develop his/her subordinates.

4.6 Technologists play an important role in bringing about improvements in management and technological innovations. The Training Board recommends that technologists should be trained via one of the following two routes:



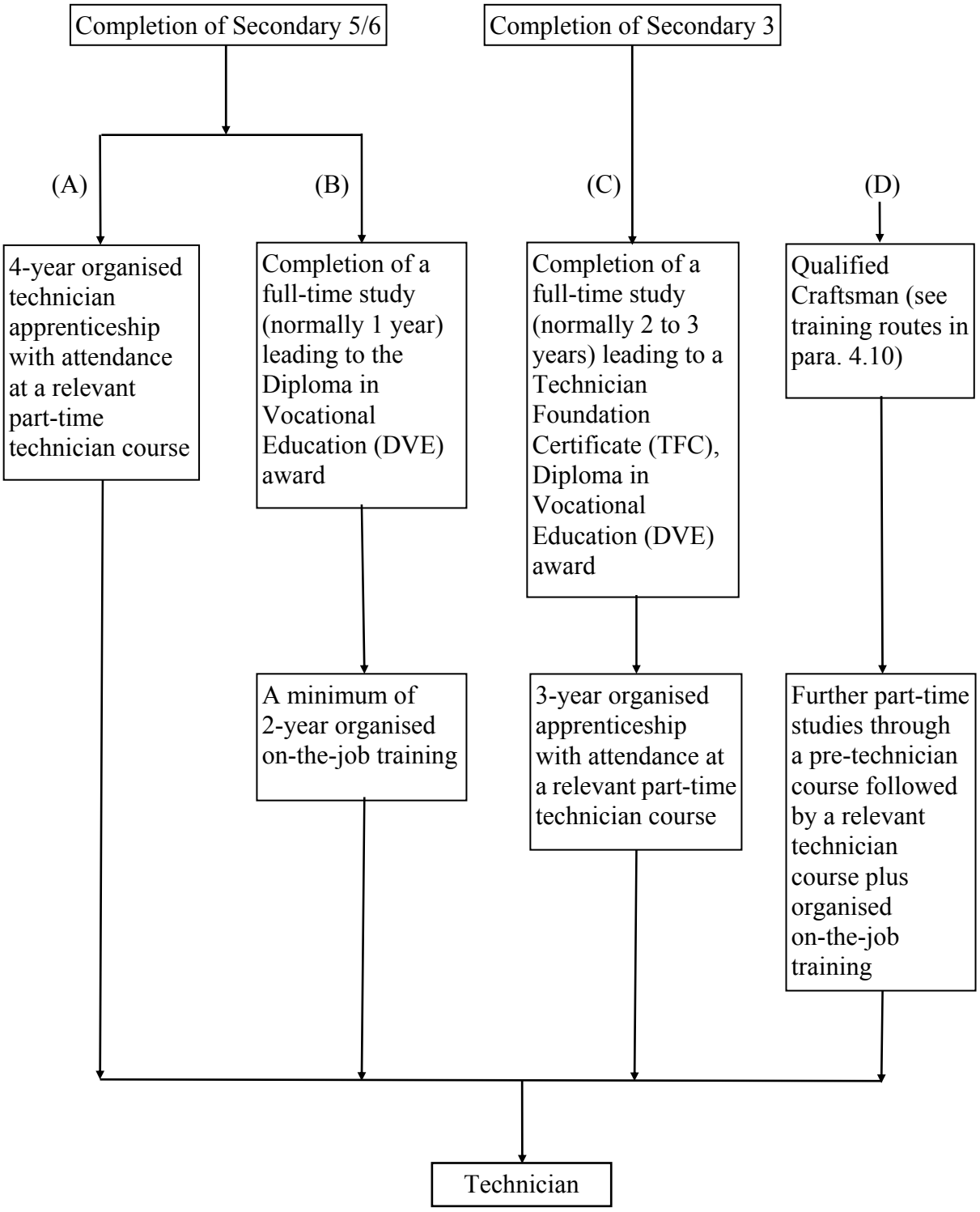
The Engineering Graduate Training Scheme

4.7 To bring about more well-structured practical training opportunities in local industries for engineering graduates, the Committee on Technologist Training of the Vocational Training Council is operating a subsidised 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 trainee under the scheme is granted a subsidy through his/her employer as part of his/her salary and his/her training progress is monitored by the Committee. The Technologist Training Unit of the Council operates a free placement service to help employers recruit graduates and graduates obtain training opportunities. The Unit also offers assistance to employers on all matters concerning the training of engineering graduates. The Training Board strongly recommends employers to participate in the scheme, and to make use of the service of the Technologist Training Unit.

Training of Technicians

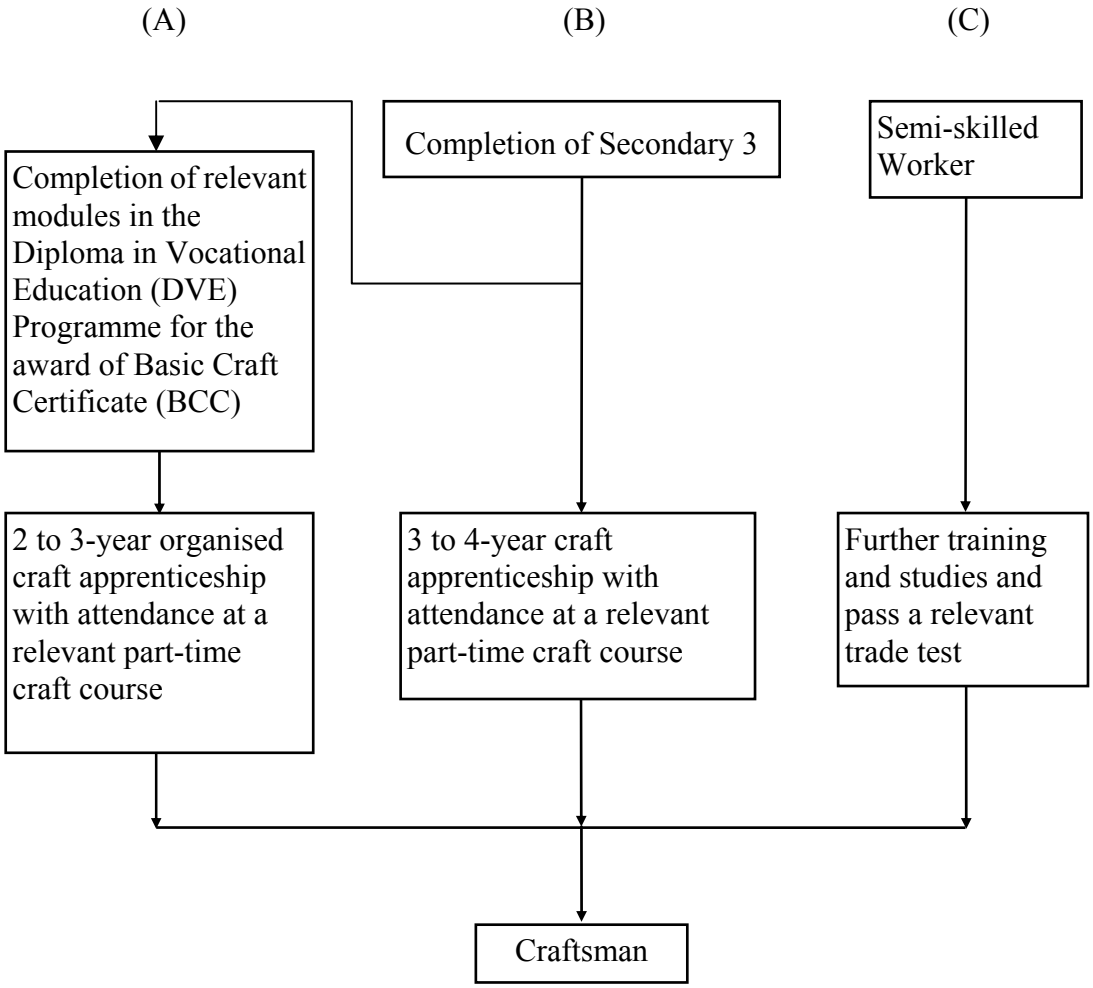
4.8 A technician is a person whose education, practical training and experience enable him/her to apply proven techniques and procedures to carry out technical tasks under the supervision of a technologist. The four normal routes for training technicians are outlined in the diagram of the next page.

4.9 The Hong Kong Institute of Vocational Education (IVE) established in 1999 by revamping the technical colleges and technical institutes of the Vocational Training Council offers courses at Higher Diploma, Diploma and Certificate levels. The Diploma in Vocational Education course also provides training at technician level for secondary school leavers. In addition, many of the IVE and Pro-Act Training and Development Centre (Precision Engineering) courses are relevant and useful to technical staff and apprentices engaged in the plastics industry. Such courses are offered in full-time, part-time day-release or part-time evening modes for the workforce of the industry.


Completion of Secondary 5/6
Completion of Secondary 3
(A)
(B)
(C)
(D)
4-year organised technician apprenticeship with attendance at a relevant part-time technician course
Completion of a full-time study (normally 1 year) leading to the Diploma in Vocational Education (DVE) award
Completion of a full-time study (normally 2 to 3 years) leading to a Technician Foundation Certificate (TFC), Diploma in Vocational Education (DVE) award
Qualified Craftsman (see training routes in para. 4.10)
A minimum of 2-year organised on-the-job training
3-year organised apprenticeship with attendance at a relevant part-time technician course
Further part-time studies through a pre-technician course followed by a relevant technician course plus organised on-the-job training
Technician

Training of Craftsmen

4.10 A craftsman is a skilled worker who is able to apply his/her skills to a wide range of jobs within his/her trade. A craftsman requires not only practical skills but also related theoretical knowledge so that he/she can adapt himself/herself to advances in technology. The three common routes for training craftsmen are:



4.11 The Training Board recommends route (A) not only because the training period is shorter but also because holders of the Basic Craft Certificate have undergone training in basic skills and would be productive soon after the start of their apprenticeship. They would also be more adaptable to the industrial environment as well.

4.12 The craftsman job "Plastics Machine Setter" is usually promoted from experienced moulding machine operator who has either completed relevant short courses in machine setting or acquired the necessary skills through many years of working experience. On the other hand, Secondary 5 leavers are recruited as "Quality Control Inspectors" as they can acquire technical knowledge and skills related to the inspection job for plastics products and related components through on-the-job training and other relevant part-time courses.

Technical Education and Training Institutions

4.13 A wide range of full-time, part-time day-release and part-time evening training courses relevant to the plastics industry are being offered by several tertiary institutions and the Hong Kong Productivity Council. Simultaneously, a great variety of relevant part-time up-grading courses are also offered by the IVE, and the Pro-Act Training and Development Centre (Precision Engineering) of the Vocational Training Council. Employers are encouraged to make full use of the training facilities in these institutions and sponsor their employees to attend relevant courses for upgrading their technical knowledge and skills. In addition, seminars and workshops organised by these bodies not only help employers absorb new technologies but also train up their technical staff in such areas.

4.14 To cope with the developing needs of the plastics industry, it is vital for in-service workers of the industry to embark on a life-long learning philosophy during their working life. It is also of equal importance that employers recognise such a need and support their employees to undertake/participate in up-grading courses, training programmes, workshops and seminars for the acquisition of advanced technologies.

Development and Training Centre of the Vocational Training Council

4.15 The Training Board has been charged with the responsibility to provide advice on matters relating to the development of training services of the Pro-Act Training and Development Centre (Precision Engineering) which has been established since July 2000 by merging the former Plastics Industry Training Centre and the Precision Tooling Training Centre. Located at the VTC Kowloon Bay Complex, the Pro-Act Training and Development Centre (Precision Engineering) and the Youth College offer the following course for generating new-entrants for the industry:

Course Title	Level	Duration
Diploma in Vocational Education – Computer-aided Product Engineering	Technician	1 to 3 years

4.16 Apart from the above full-time courses, the Pro-Act Training and Development Centre (Precision Engineering) also offers a wide range of full-time, part-time day-release and part-time-evening training courses for in-service workers of the plastics industry with the purpose of developing the local workforce to cope with the development of a knowledge-based economy in Hong Kong. Training courses cover various areas such as CNC machining technology, design and manufacture of precision moulds and dies, product design/development, CAID/CAD/CAM/CAE, product/process information management, product testing/evaluation, quality control, material development/selection, process development/selection, product and project engineering.

4.17 In response to the training needs of the Small and Medium Enterprises (SMEs) of the plastics industry, the Pro-Act Training and Development Centre (Precision Engineering) continues offering the training programme in CAD/CAM/CAE technology for SMEs with the objective of assisting the SMEs to train up their technical staff in the application of advanced CAD/CAM/CAE softwares effectively. Trainees on the programme will receive practical training both at the Pro-Act Training and Development Centre (Precision Engineering) and at the employers' workplace.

4.18 The Training Board strongly urges employers to give full support to the training centres by recruiting their apprentices and trainees from these centres and sending their in-service workers to attend the relevant up-grading courses for enhancing their technical competence in their work.

Related Training Services of the Vocational Training Council

4.19 The Vocational Training Council offers services to help employers organise their training schemes including:

(i) The statutory **Apprenticeship Scheme,** through which technicians and craftsmen are effectively trained to meet the needs of the industry.

(ii) The **Engineering Graduate Training Scheme,** which helps engineering students and graduates complete their professional training as engineers.

(iii) The voluntary **Trade Testing and Certification Scheme,** which is for the purpose of ascertaining and recognizing the standards of skilled workers. Since 1990, the Plastics Training Board has been conducting trade tests for plastics mould makers. Apart from that, trade tests on various CNC machining trades are also offered by the Training Board.

(iv) The **New Technology Training Scheme** provides financial assistance to local companies up to a maximum of 50% of the training cost for their employees to be trained in new technologies. The Scheme covers various types of training mode including overseas training courses or working attachment; local training courses; and tailor-made local training courses/working attachments for individual companies.

4.20 The Training Board recommends employers to contact the Vocational Training Council for assistance in setting up training schemes and recruiting trainees.

Training Programmes in Pearl River Delta (PRD)

4.21 With most of the production facilities located at PRD, the plastics industry is employing a workforce of more than 540 000 Mainland workers. Among them, about 5 700 are engineers. At the same time, employers are also posting some 400 technologists and 200 technicians to their PRD operations for more than 6 months in a year as detailed in paragraphs 2.10 and 2.11. These figures indicate that there is a huge demand for training for both Hong Kong and Mainland workers in the PRD region. The Pro-Act Training and Development Centre (Precision Engineering) has offered training programmes especially on areas relating to the plastics injection moulding technology, CNC machining and CAD/CAM technologies, plastics materials knowledge and engineering drawing standards in the PRD region for operations set up by Hong Kong employers, on a full-cost recovery basis, in order to provide pro-active support to Hong Kong employers and to meet their training needs there.

Remarks

4.22 It should be emphasised that this survey covered the major sectors of the plastics industry only. Reader can refer to Section 1.6 for the scope of the survey. The employment figures in this report do not include any other manufacturing branches which are outside of the survey scope, e.g. auto-parts, clocks and watches, electricity and electronics, furnishing, etc. The Training Board is fully aware that nowadays, plastics are used in virtually every industry sectors. Anyway, due to the constraints in resources, the survey scope needs to be confined to those sectors which employ the largest number of technical manpower of the plastics industry.

塑膠業 2011 年人力調查
報告摘要

調查目的及範圍

塑膠業訓練委員會於 2011 年 7 月 18 日至 9 月 17 日期間進行人力調查，蒐集業內技術人力的最新資料，以便評估現時及未來的人力需求，並建議對應措施。

2. 調查選取 959 間公司爲樣本，當中包括 758 間塑膠製造及貿易類別公司，以及 201 間塑膠製造服務類別公司。是次爲把調查範圍擴大至塑膠貿易類別及塑膠製造服務類別後的第八次人力調查，實際填覆率爲 93.8%。蒐集所得的數據其後經統計學方法倍大，以反映調查期間塑膠業的整體人力狀況。

調查結果

3. 調查顯示 2011 年時，本地塑膠業共有僱員 9 845 人（即受僱從事人力調查報告所訂明塑膠業主要職務的人士），按技能等級分布如下：

技能等級	僱員人數	佔僱員總數百分率
技　師	4 097	41.6%
技術員	3 652	37.1%
技　工	386	3.9%
操作工	907	9.2%
非技工	803	8.2%
總數	9 845	100.0%

4. 各類別內不同技能等級僱員的分布情況如下：

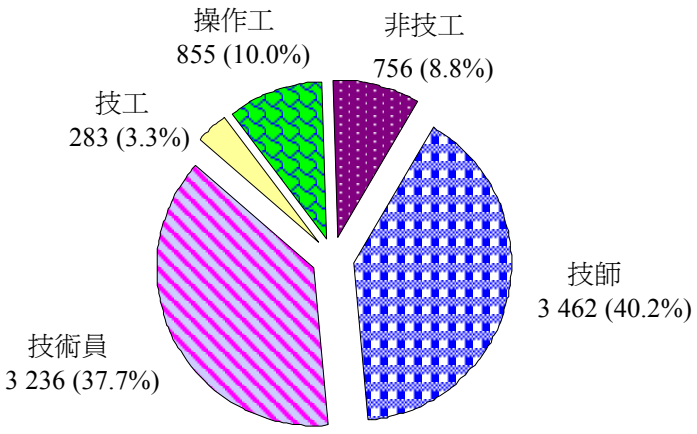
表 A： 各類別內不同技能等級僱員的分布情況

技能等級	類別 A 塑膠製造及貿易類別			類別 B 塑膠製造 服務類別	所有 類別
	製造	貿易	總數		
技　師	152	3 310	3 462	635	4 097
技術員	194	3 042	3 236	416	3 652
技　工	195	88	283	103	386
操作工	763	92	855	52	907
非技工	313	443	756	47	803
總數	1 617	6 975	8 592	1 253	9 845

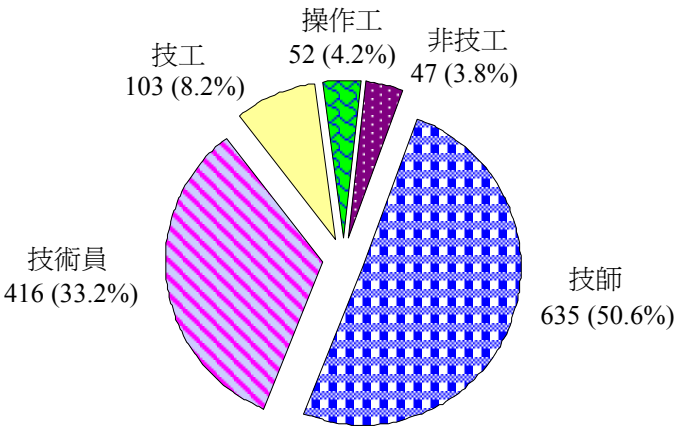
5. 各類別內不同技能等級僱員的結構及分布情況載於圖 1：

圖 1：各技能等級人力狀況

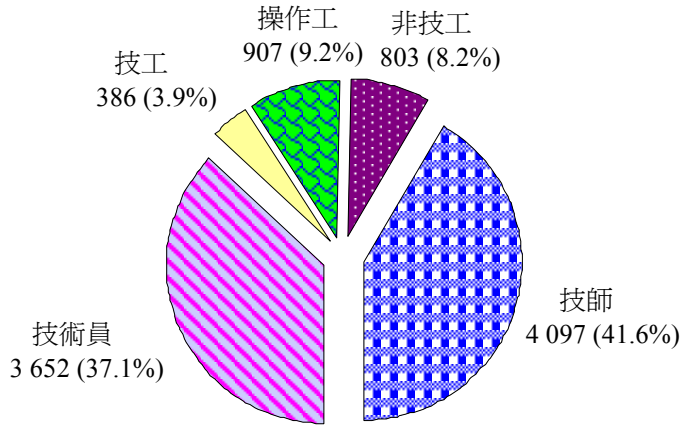
類別 A：塑膠製造及貿易類別 (8 592 人)



類別 B： 塑膠製造服務類別 (1 253 人)



所有類別：9 845 人



6. 調查期間，本業共有 6 名受訓者，其中 3 名屬技師級、1 名屬技工級、2 名屬操作工級。

7. 僱主報稱有 151 個職位空缺，相當於整體人力約 1.5%。當中 44 個空缺屬技師級、59 個屬技術員級、7 個屬技工級、21 個屬操作工級、20 個屬非技工級。

8. 根據僱主的回覆，2010 至 2011 年期間，24 名僱員獲擢升更高的職級。同期，428 名技師、231 名技術員及 2 名技工於香港境外工作超過 6 個月，分別佔所屬技能等級僱員人數的 10%、6% 及 0.5%。

9. 僱主預計截至 2012 年 9 月，塑膠業將共聘用 9 973 人，顯示僱主預期未來一年的整體人力增幅非常溫和。

10. 同時，僱主表示於廣東省的廠房共僱用 541 568 名內地僱員，當中 5 735 名屬於內地工程師。僱主預期至 2012 年 9 月，廣東省廠房將僱用 5 797 名內地工程師，增幅爲該技能等級人力的 1.1%。請注意，由於是次調查大部分填覆者均表示不清楚或不確定內地廠房中的人力數字，故上述數字未必準確。

11. 是次爲把調查範圍擴大至塑膠貿易類別及塑膠製造服務類別後的第八次人力調查；有大量技術人員受僱於該兩個類別。2009 及 2011 年各類別內不同技能等級的人力分布及比較見表 B：

表 B : 各類別內不同技能等級的人力分布比較
（括號內爲 2009 年的數字）

技能等級	塑膠製造及貿易類別			塑膠製造服務類別	所有類別
	製造	貿易	總數		
技師	152 (112)	3 310 (3 303)	3 462 (3 415)	635 (543)	4 097 (3 958)
技術員	194 (184)	3 042 (2 812)	3 236 (2 996)	416 (303)	3 652 (3 299)
技工	195 (201)	88 (131)	283 (332)	103 (83)	386 (415)
操作工	763 (891)	92 (67)	855 (958)	52 (55)	907 (1 013)
非技工	313 (251)	443 (380)	756 (631)	47 (55)	803 (686)
總數	1 617 (1 639)	6 975 (6 693)	8 592 (8 332)	1 253 (1 039)	9 845 (9 371)

未來人力需求

12. 根據是次人力調查結果，本會推算未來四年，爲應付三個技能等級的人力增長及流失，塑膠業平均每年約需增聘的技術人員數目如下：

技能等級	建議每年增聘
技師	175 - 214
技術員	153 - 187
技工	10 - 13

13. 爲應付塑膠業的發展需求，本會籲請僱主提供合適的在職培訓、學徒訓練，並利用工科畢業生訓練計劃、新科技培訓計劃、技能測驗及證書頒發制度，以幫助技術人員發展及提升技能。同時，職業訓練局屬下香港專業教育學院和卓越培訓發展中心（精密工程業），亦開辦多種類型的全日制及兼讀制增修課程。本會籲請僱主資助員工修讀有關課程，以提升他們的行業專門知識。

14. 本港塑膠業的生產設施大多設在珠江三角洲地區（珠三角），廠商僱用了大量內地工人，這批工人與在當地工作的香港員工，都有極大的訓練需求。因此，卓越培訓發展中心（精密工程業）已在珠三角區提供塑膠壓注模塑科技、電腦數控加工及電腦輔助設計／電腦輔助生產科技、塑料知識及工程繪圖標準等相關訓練，爲港資企業服務；課程按成本收費，務求爲港商提供積極的支援，配合他們在當地的訓練需求。

業務前景

15. 塑膠業一直面對各種挑戰，特別是目前歐洲面臨經濟衰退，新興市場又增長疲弱，令環球經濟前景動盪不穩。雖然如此，香港企業已隨機應變，將企業轉型升級，持續提升生產能力及品質，務求向中、高檔市場邁進；

16. 歐元區持續傳來利淡消息，美國經濟又增長緩慢，仍在香港的製造廠商或會因而加快遷往中國內地及其他國家。而已在珠江三角洲營運的企業，如搬遷到內地較落後地區或鄰近國家或有助減低勞工成本，並聘請到半技術工人。不過，他們可能同時遇到難以留住及物色幹練技術員和管理人員的問題，而且運輸及其他成本也會增加；

17. 過去多年中國央行容許人民幣兌美元的匯價累計上升約21%。不過，隨着2008年環球經濟危機的影響浮現，中國已停止讓人民幣升值。2010年6月，中國重新讓人民幣升值，直到2011年11月，人民幣兌美元匯率上升8%。根據香港貿易發展局一名

經濟師的分析，如人民幣兌美元匯價升值4%，製造商的生產成本就會增加2%；

18. 由於中國經濟持續暢旺，內地沿岸省份近年一直面對勞工短缺的問題。2011年，廣東省官方及傳媒估計，廣東省約短缺一至二百萬名工人。結果過去兩年工廠工資急升，尤其是勞工密集型工業；

19. 中國內地的新《勞動合同法》於2008年頒布，大大改變了工人和僱主簽訂合同的條件，並讓工人對其工作條件有更大的影響力。過去中國政府視低成本採購、廉價出口製造爲國家下輪經濟增長的基礎，新法例顯示這種看法已經改變。中央及廣東省政府均在推動產業升級，業界已感受到其影響；

20. 新《企業所得稅法》於2008年生效，統一了中國本地和外資企業的稅務待遇。其後國家稅務總局發出多則稅務公告，以處理該法例的執行及管理問題。法例生效後免稅期取消，稅率優惠減少，香港的中小型製造商這幾年已逐漸適應有關轉變；

21. 產品安全是業界近年面對的重大挑戰。歐盟和美國已採取更嚴厲的安全標準，規管產品設計、標籤及可能有害物質（如鄰苯二甲酸酯、鎘）的准許限度。業界已與相關官員討論一些會嚴重衝擊行業的規則，並且舉辦論壇及研討會，以協助同業遵守新規例；

22. 基於行業使用大量塑膠來製造和包裝產品，海外及內地的環保人士非常關注，憂慮即使業界致力使用可循環再造塑膠物料，仍會製造出大量廢物；

23. 大部分製造工序較爲勞工密集，除了啤塑及壓注工作外，很多工序都難以自動化。換言之要保持競爭力，必須維持低勞工成本，同時需要有源源不絕的工人供應。爲此，有些企業已遷出珠江三角洲的傳統製造區，搬往韶關或廣東其他山區，那裡可更容易以較低工資聘用半農村勞工。不過，那些新地點較遠離香港口岸，令物流較爲不便，費用增加。物流成本和是否鄰近等考慮因素，需與勞工成本及工人來源一併小心衡量。鑒於內地的生產成本飆升，香港一些企業計劃進一步將生產基地搬遷到成本更低的東南亞國家；

24. 玩具承包製造屬商品業務，只從事原設備製造*[OEM]*的企業，其壽命、利潤或增長可能有限，除非能爲顧客提供額外支援或超卓服務。這些企業須設法以優良表現或融合服務增值，不然將面對十分激烈的競爭；

25. 香港企業面對種種挑戰：市場轉變、強勢的買家及持牌人、競爭加劇、工資及投入資源成本增加導致成本上升、人民幣升值、《勞動合同法》實施，以及出口加工政策的改變；

26. 愈來愈多香港企業正以開發品牌產品作爲增值策略，有些是在香港及內地市場推出自家品牌，有些則是夥拍美國等其他市場上舉足輕重的公司推出品牌。合作品牌可讓香港企業藉着知名品牌快速進入大市場，獲取有助企業在其他市場建立自己品牌的知識，並可爲合作伙伴進行其他活動及提供服務（例如原設備製造）；

27. 香港企業的其他增值方法，還有改進產品設計及運用新技術。在珠江三角洲，玩具業技術已頗爲先進，但比起大部分競爭對手，香港企業與國際企業進行貿易的歷史較長，並涉及更多方面業務，既能達到國際企業所要求的世界級製造水平，亦能符合各項嚴格的要求。部分香港企業已進行技術優化工程以保持優勢，其他則結合優秀工程和設計才能，爲產品增添新元素；

28. 內地14歲以下的兒童估計有2億5 200萬人，香港玩具製造商都期望進軍內地這個需求龐大的市場。不少香港企業已開展小規模業務，嘗試了解內地消費者的要求，以及他們與傳統市場有何不同之處。可是，在中國銷售產品並非易事。香港玩具製造商打進內地市場有以下障礙：市場結構不成熟，分銷途徑不完善或難以接觸，規例欠清晰，枱底交易盛行，以及收款困難；

29. 內地政府已推出一系列財政及稅務優待，以鼓勵本地企業（包括港資企業）搬遷、轉型及升級。此政策配合了國家「十二五」規劃擴大內需的策略重點。香港企業若要進入內地市場，可考慮銷售高檔產品，以及發展自家品牌及零售業務；

30. 部分內地塑膠及玩具製造商已成功進入本地市場，銷售高檔產品以及發展品牌及零售業務。據悉，這些企業有意委託香港企業爲其品牌產品負責原設計製造*[ODM]*生產。內地企業轉型令外判工作增加，想專注生產業務的香港企業可留意因此而帶來的商機；

31. 內地及鄰近地區在產品製造方面愈來愈具優勢，香港公司可考慮把訂單外判予這些公司，以提高整體的生產力；同時，可藉機集中資源和人力用以發展自身更具競爭優勢的範疇，如產品設計、顧客服務及國際營銷等，從而開發新的產品及產品組合，甚至拓展自家品牌業務，並打開內地的零售渠道；

32. 電子技術發展一日千里，利用電子技術進行物料採購、生產管理、營銷採購、銀行及其他相關服務的情況日趨普及，有助使香港成爲全球重要的採購及商務中心，特別是塑膠產品方面。

第一章

緒論

塑膠業訓練委員會

1.1 塑膠業訓練委員會隸屬職業訓練局。根據職權範圍，本會須負責調查塑膠業的人力及訓練需求，並就發展訓練設施向局方提出建議，以應付業界的需要。本會委員由主要商會、工會、專業團體、教育／培訓機構及政府部門提名出任。委員名單及職權範圍分別載於附錄 1 及附錄 2。

人力調查

1.2 本會按照職權規定，於 2011 年 7 月 18 日至 9 月 17 日期間進行塑膠業人力調查，蒐集最新人力資料，以評估業內人力結構及訓練需求。是次調查由政府統計處*[統計處]*協助進行。

1.3 調查所收集的資料包括：

(i) 調查期間的僱員人數；

(ii) 僱主預計在 2012 年 9 月時的僱員總數；

(iii) 現有空缺額；

(iv) 受訓僱員人數；

(v) 僱員每月平均收入；以及

(vi) 僱主認爲各技能等級僱員宜有的教育程度、訓練方式及訓練時間。

1.4 是次調查請僱主填報調查前 12 個月內，派駐香港以外地區工作超過 6 個月的技師、技術員及技工人數。

1.5 調查亦請僱主提供由其公司管理之廣東省機構所聘的內地員工人數，包括內地工程師人數，以及預計 12 個月後此類僱員的數目。

調查範圍

1.6 是次調查涵蓋業內以下類別的機構：

I. 類別 A ： 塑膠製造及貿易

(i) 塑膠玩具製造（HSIC 324300）；

(ii) 塑膠家庭用具製造（HSIC 222200）；

(iii) 塑膠外殼及零件製造（HSIC 222400）；

(iv) 塑膠袋的製造（手袋除外）（HSIC 222300）；

(v) 其他塑膠產品製造（HSIC 222901、222902、222999）；

(vi) 玩具進出口（HSIC 451444、451445、452444、452445）；

(vii) 塑膠製品、塑膠飾物及塑膠花進出口（HSIC 451451、452451）；

（註：「HSIC」代表「香港標準行業分類」）

II. 類別 B： 塑膠製造服務

測試中心、主要塑膠原料供應商、塑膠產品設計公司。（這些機構並未納入 HSIC 的分類。）

1.7 由於業界於九十年代已逐漸將生產設施遷離本港，統計處遂將大部分塑膠製造機構重新歸類爲塑膠貿易機構。本會亦自 1997 年人力調查起，決定將塑膠製造及塑膠貿易兩個類別，合併爲塑膠製造及貿易類別。

抽樣方法

塑膠製造類別

1.8 根據統計處提供的資料，截至 2011 年第一季，塑膠製造機構共有 430 間。鑑於資源有限，本會採用分層隨機抽樣法，抽選出其中 206 間機構作爲調查對象。

塑膠貿易類別

1.9 由於僱員人數少於 5 人的貿易公司甚少會僱用技術人員，本會決定只抽查僱用 5 名或以上僱員的機構。根據統計處的紀錄，符合此準則的塑膠貿易機構共有 2 034 間。本會同樣採用分層隨機抽樣法，抽選出其中 552 間作爲是次調查的對象。

塑膠製造服務類別

1.10 鑑於現時香港標準行業分類*[HSIC]*制度並不包括塑膠製造服務類別，本會遂參考香港生產力促進局出版的《塑膠業指南》，選出業內的測試中心、主要塑膠原料供應商及塑膠產品設計公司，並將其納入調查範圍。最後，本會共選出 201 間機構爲調查對象。

抽查機構總數

1.11 本會按上述的抽樣方法，合共選出 959 間機構爲是次調查的對象，涵蓋業內所有類別。

調查方法

1.12 調查前約一星期，本會將主席函件、調查表及相關調查文件（見附錄 3A 及附錄 3B）一併寄給各選定機構。實地調查進行期間，統計處職員主動聯絡各選定機構，解答疑問，並於有需要時協助僱主填報資料。此外，統計處職員亦有預約造訪各選定機構，收回已填妥的調查表。

1.13 調查結束後，負責人員仔細檢閱收回的調查表，並於有需要時與填覆機構核實資料，隨後交統計處處理。塑膠製造及貿易類別的資料其後以統計方法倍大，再加上塑膠製造服務類別所得的數字，以反映調查期間業內的整體人力狀況。

調查反應

1.14 實地調查訪問期間，有額外 10 間機構自願參與調查。在合共 969 間受訪機構中，604 間提供所需資料，另有 325 間機構已結業、搬遷、與其他機構合併、並無聘用技術人員、或不再從事塑膠業相關業務；其餘 40 間則拒絕提供資料。是次調查的有效回應率爲 93.8%。

人力調查報告

1.15 本報告刊載是次人力調查的結果、本會對塑膠業的人力需求預測，以及應付此等需求的建議措施。報告內提及的「人力」及「僱員」均指從事塑膠業及相關範疇內 37 個主要職務的總人力（受訓者及學徒除外），而「受訓者」則指正在接受各種訓練的從業員，以及簽有學徒合約的登記學徒。

主要職務

1.16 是次人力調查所涵蓋的 37 個主要職務及其相關工作說明載於附錄 3C。

第二章

調查結果摘要

僱員人數

2.1 是次調查顯示，2011 年調查進行時，本地塑膠業各主要職務共有僱員 9 845 人。若按技能等級劃分，業內的僱員分布情況如下：

技能等級	僱員人數	佔僱員總數百分率
技師	4 097	41.6%
技術員	3 652	37.1%
技工	386	3.9%
操作工	907	9.2%
非技工	803	8.2%
總數	9 845	100.0%

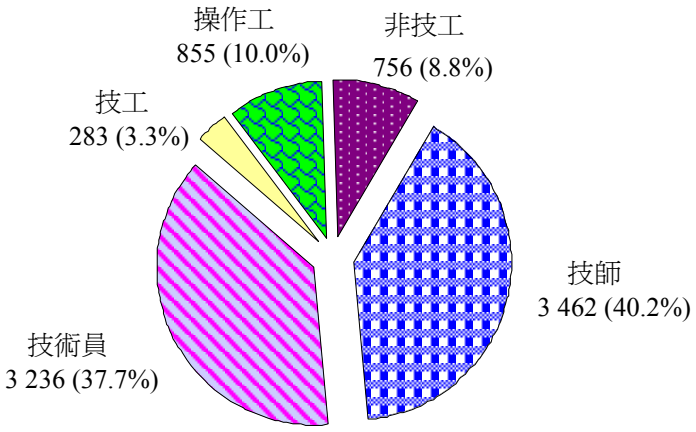
2.2 各類別不同技能等級僱員的分布情況見表 A 及圖 1：

表 A: 各類別不同技能等級僱員的分布情況

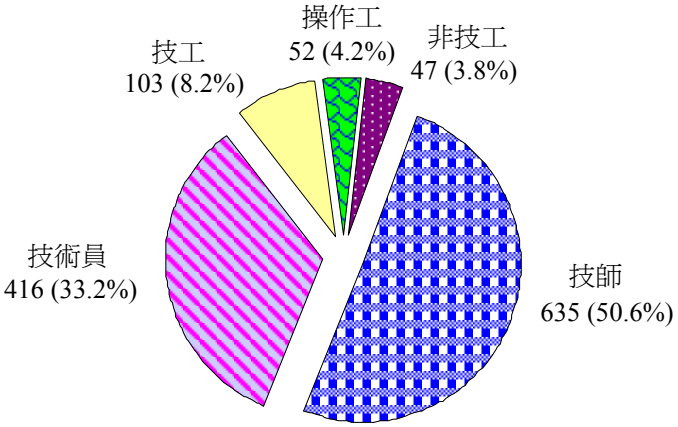
技能等級	類別 A 塑膠製造及貿易類別			類別 B 塑膠製造服務類別	所有類別
	製造	貿易	總數		
技師	152	3 310	3 462	635	4 097
技術員	194	3 042	3 236	416	3 652
技工	195	88	283	103	386
操作工	763	92	855	52	907
非技工	313	443	756	47	803
總數	1 617	6 975	8 592	1 253	9 845

圖 1：各技能等級人力狀況

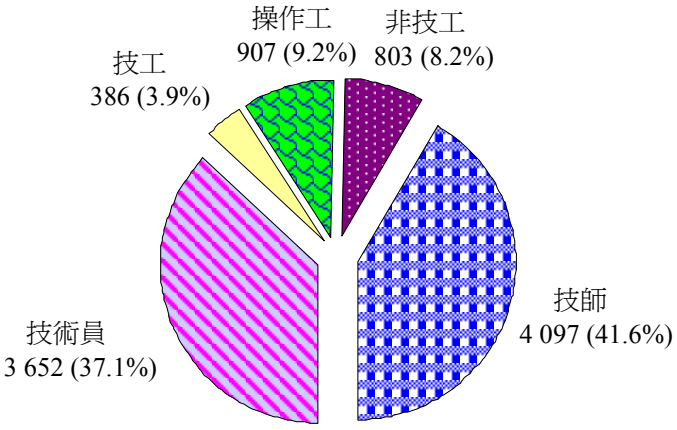
類別 A：塑膠製造及貿易類別 (8 592 人)



類別 B：塑膠製造服務類別 (1 253 人)



所有類別：9 845 人



受訓者人數

2.3 調查期間，業內共有受訓者 6 名，按技能等級的分布見表 B：

表 B: 各技能等級受訓者的分布情況

技能等級	受訓者人數	佔同級僱員總數的百分率
技師	3	0.1%
技術員	0	0%
技工	1	0.3%
操作工	2	0.2%
總數	6	0.1%

空缺額

2.4 據僱主填報，業內共有 151 個空缺，佔調查期間僱員總數約 1.5%：

表 C: 各技能等級的空缺分布情況

技能等級	空缺額	佔同級僱員總數的百分率
技師	44	1.1%
技術員	59	1.6%
技工	7	1.8%
操作工	21	2.3%
非技工	20	2.5%
總數	151	1.5%

調查期間的空缺額及預計至 2012 年 9 月時的僱員人數

2.5 在 151 個空缺中，44 個屬技師級，59 個屬技術員級，7 個屬技工級，21 個屬操作工級，20 個屬非技工級。各技能等級現有僱員人數與空缺額的比較見圖 2。

2.6 僱主預計，至 2012 年 9 月時，業內五個技能等級共會有僱員 9 973 人。調查期間的人力狀況與僱主預計至 2012 年 9 月時各技能等級僱員人數的比較見表 D 及圖 3。

表 D: 現時人力狀況與僱主預計至 2012 年 9 月時僱員人數的比較

技能等級	調查期間僱員人數 (a)	調查期間空缺額 (b)	調查期間僱員人數及空缺額 (a) + (b)	僱主預計 2012 年 9 月時的僱員人數 (c)	僱主預計的人力轉變 {(c) ÷ [(a) + (b)] – 1}x 100%
技師	4 097	44	4 141	4 141	0%
技術員	3 652	59	3 711	3 708	-0.1%
技工	386	7	393	388	-1.3%
操作工	907	21	928	917	-1.2%
非技工	803	20	823	819	-0.5%
總數	9 845	151	9 996	9 973	-0.2%

圖 2: 各技能等級空缺額與現有人力的比較

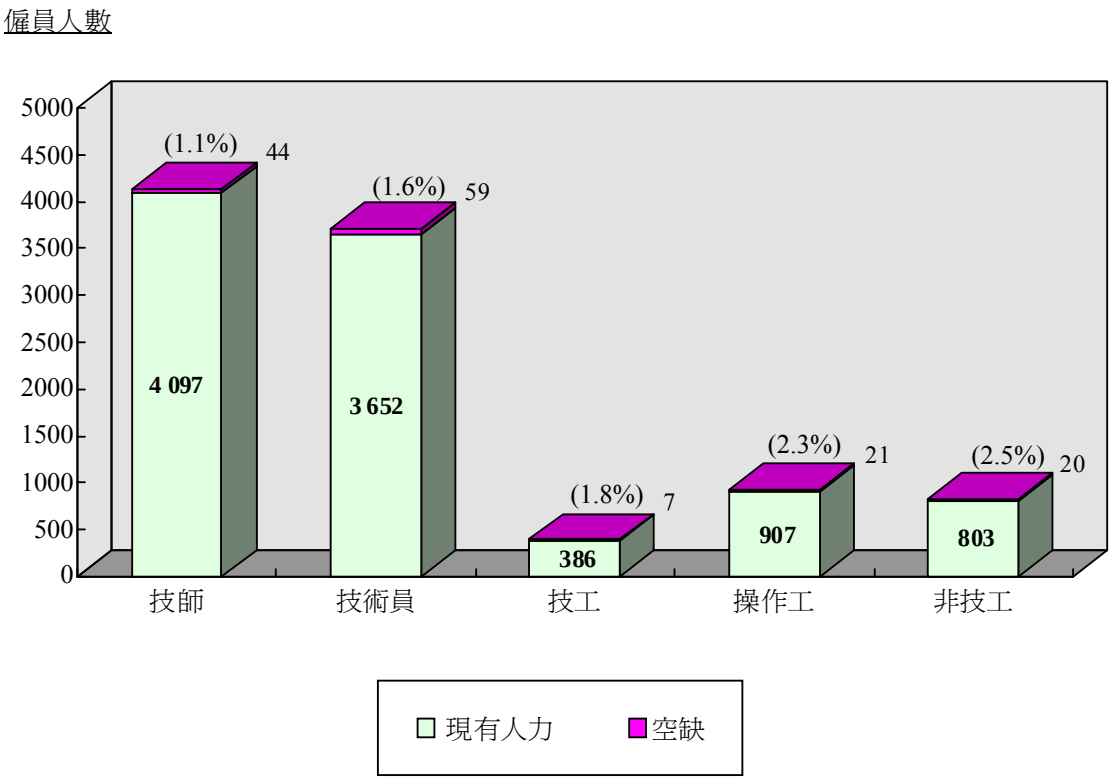
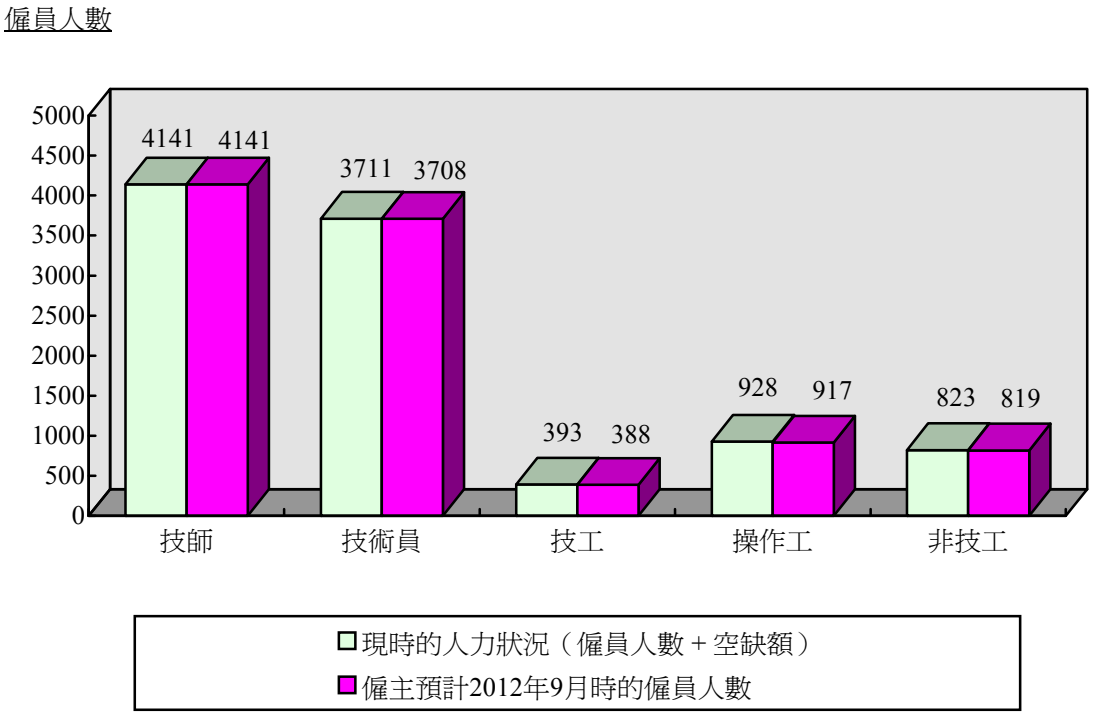


圖 3: 現時的人力狀況與僱主預計至 2012 年 9 月時僱員人數的比較



僱員每月收入幅度

2.7 由於法定最低工資於 2011 年 5 月 1 日起生效，本會亦修訂是次調查的僱員月入幅度。各技能等級僱員每月平均收入幅度分布詳見表 E。按主要職務劃分的分布情況則載於附錄 4 表 四。

表 E: 各技能等級僱員每月平均收入幅度分布情況

技能等級	$7,501 以下	$7,501-$10,000	$10,001-$15,000	$15,001-$20,000	$20,000 以上	未列明	分類總數
技師	23	18	209	1 244	2 078	525	4 097
技術員	19	59	1 494	1 365	262	453	3 652
技工	75	106	145	41	11	8	386
操作工	142	570	152	2	0	41	907
非技工	209	519	44	0	0	31	803
總數	468	1 272	2 044	2 652	2 351	1 058	9 845

僱員宜有的教育程度、訓練方式及訓練時間

2.8 僱主認爲技師、技術員及技工級僱員宜有的教育程度、訓練方式及訓練時間見表 F：

表 F: 僱主認爲僱員宜有的教育程度、訓練方式及訓練時間

技能等級	宜有教育程度	宜有訓練方式	宜有訓練時間
技師	大學學位／高級文憑	在職訓練	2 至 3 年或 4 年或以上
技術員	高級文憑／文憑	在職訓練	2 至 3 年或 3 至 4 年
技工	技工證書／中五至中七	在職訓練	1 至 2 年或 3 至 4 年

內部晉升人數

2.9 調查前 12 個月內，業內共有 24 名僱員獲晉升至較高職位。各技能等級獲晉升的僱員人數見表 G：

表 G: 內部晉升人數

晉升情況	獲晉升人數	佔所晉升等級 僱員人數的百分率
由技術員晉升至技師	16	0.4%
由技工晉升至技術員	1	0.03%
由操作工晉升至技工	7	1.8%
總數	24	-

在香港以外地區工作的技術人員

2.10 2011 年 9 月前的 12 個月內，業內共有 428 名技師，231 名技術員及 2 名技工曾在香港以外地區工作超過 6 個月，分別佔所屬技能等級僱員總數的 10.5%、6.3%及 0.5%。業內兩個類別機構內此類僱員的分布情況見表 H。

表 H: 在香港以外地區工作的技術人員

	技師	技術員	技工
塑膠製造及貿易類別	396	225	2
塑膠製造服務類別	32	6	0
所有類別	428	231	2

在廣東省機構工作的員工

2.11 據僱主填報，其設於廣東省的機構於調查期間合共僱用 541 568 名內地員工，其中 5 735 人爲工程師。僱主預計至 2012 年 9 月時，該類工程師的人數會增至 5 797 人，增幅約爲該技能等級人力總數的 1.1%。由於是次調查中不少受訪機構表示不清楚或不確定其設於內地機構的人力情況，上述數據可能並不準確，因此閱讀時宜加注意。

本港塑膠業的僱員總數

2.12 調查期間，本港塑膠業共僱用 17 175 名其他範疇的人員，主要爲文職人員及後勤支援人員。總括而言，調查期間，本港塑膠業共有僱員 27 020 人（塑膠及相關範疇佔 9 845 人；其他範疇佔 17 175 人）。

統計表

2.13 塑膠業各類別機構不同技能等級內各主要職務的人力統計數字（包括受訓者人數、空缺額、僱主預計至 2012 年 9 月時的僱員總數），分別載於附錄 4 表一、表二及表三。

第三章

結論

概況

3.1 本會審閱了是次調查結果，認爲所得資料大致可反映調查期間塑膠業的實際人力情況。

3.2 自1997年的人力調查起，本會將調查範圍擴展至涵蓋塑膠貿易類別，以及僱用大量技術人員的塑膠製造服務類別。2009與2011年業內各類別不同技能等級的人力分布情況及比較見表3.A：

表 3.A : 各類別不同技能等級的人力分布及比較
（括號內爲2009年調查的數字）

技能等級	塑膠製造及貿易類別			塑膠製造服務類別	所有類別
	製造	貿易	總數		
技師	152 (112)	3 310 (3 303)	3 462 (3 415)	635 (543)	4 097 (3 958)
技術員	194 (184)	3 042 (2 812)	3 236 (2 996)	416 (303)	3 652 (3 299)
技工	195 (201)	88 (131)	283 (332)	103 (83)	386 (415)
操作工	763 (891)	92 (67)	855 (958)	52 (55)	907 (1 013)
非技工	313 (251)	443 (380)	756 (631)	47 (55)	803 (686)
總數	1 617 (1 639)	6 975 (6 693)	8 592 (8 332)	1 253 (1 039)	9 845 (9 371)

塑膠業各類別的人力變化

3.3 塑膠製造類別有三個主要分類：玩具、用具／外殼及零件，以及其他塑膠產品。是次調查顯示，塑膠製造類別的人力由2009年的1 639人輕微下降至2011年的1 617人，兩年來縮減約1.4%。此類別內各分類不同技能等級的人力變化見表3.B：

表 3.B : 塑膠製造類別各分類
不同技能等級的人力變化

技能等級	分類 1（塑膠玩具製造）		分類 2（塑膠家庭用具、外殼及零件製造）		分類 3（塑膠袋（手袋除外）及其他塑膠產品製造）		塑膠製造類別的人力總數	
	2009	2011	2009	2011	2009	2011	2009	2011
技師	15	14	34	31	63	107	112	152
技術員	13	15	61	48	110	131	184	194
技工	39	22	51	38	111	135	201	195
操作工	140	127	160	115	591	521	891	763
非技工	29	44	85	64	137	205	251	313
總數	236	222	391	296	1 012	1 099	1 639	1 617

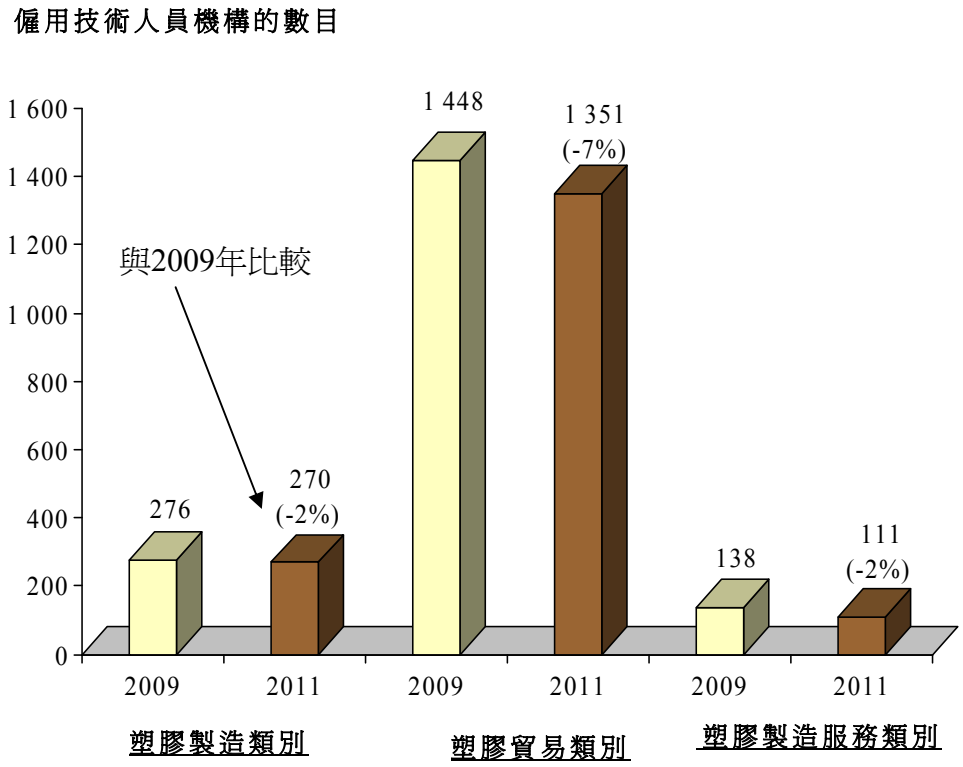
3.4 本會認爲，塑膠製造類別的人力縮減，與該類別的機構數目減少直接相關。調查期間（2011年7至9月），塑膠製造類別共有270間機構僱用了技術人員，較兩年前的數字（2009年爲276間）減少7%（見圖3.A），原因可能是：

(i) 愈來愈多僱用一定數量技術人員的塑膠製造機構將生產設施及工序遷離香港，按統計處的分類方法，這些機構均重新歸類爲塑膠貿易公司。

(ii) 90%塑膠製造類別的機構屬小型企業，當中有些因近年全球業務萎縮而倒閉。

(iii) 不少此類小型企業的東主已屆退休年齡，由於未能覓得合適的繼任人，只好結業。

圖 3.A : 估計2011年僱用技術人員的塑膠業機構數目



3.5 塑膠貿易類別有兩個主要分類：玩具進出口 ，以及塑膠製品、塑膠飾物及塑膠花進出口。塑膠業內此類別僱用最多技術人員，其技師、技術員、技工級僱員佔業內僱員總數約79%。與2009年的數字比較，是次調查顯示，塑膠貿易類別的總人力於過去兩年錄得溫和增長（增幅爲4%）。調查亦發現，技師級僱員人數由2009年的3 303人微增至2011年的3 310人，增幅爲0.2%。技術員級僱員人數亦上升8.2%，由2009年的2 812人增加至2011年的3 042人。至於技工級僱員人數方面，則由2009年的131人下降至2011年的88人，減幅爲32.8%。塑膠貿易類別內各分類不同技能等級的人力變化見表3.C：

表 3.C : 塑膠貿易類別各分類
不同技能等級的人力變化

技能等級	分類 4 玩具進出口		分類 5 塑膠製品、塑膠飾物及塑膠花進出口		塑膠貿易類別的人力總數	
	2009	2011	2009	2011	2009	2011
技師	2 424	2 440	879	870	3 303	3 310
技術員	2 133	2 346	679	696	2 812	3 042
技工	110	53	21	35	131	88
操作工	67	66	0	26	67	92
非技工	130	229	250	214	380	443
總數	4 864	5 134	1 829	1 841	6 693	6 975

3.6 本會認爲，塑膠貿易類別出現上述的人力變化，主要原因如下：

(i) 本港塑膠貿易機構主要從事產品設計及開發、策劃及統籌項目，以及爲內地廠房提供後勤支援。由於此類工作需由幹練的技術人員擔任，因此這類機構需要更多技術員或更高職級的僱員。

(ii) 香港學生現時普遍接受更多教育才離校就業，因此技工的供應減少，而投身業界擔任技術員職級的文憑／高級文憑畢業生則愈來愈多。是次調查反映，由於人力供應充足，技術員級的僱員人數有所增加。

(iii) 僱主雖然也樂於聘用技師，但大多希望物色具備解決問題的能力，以及系統整合知識的人選，而這些能力和知識必須經過多年的工作經驗累積。初出茅廬的畢業生未必能符合僱主的期望，技師級的僱員人數維持平穩。

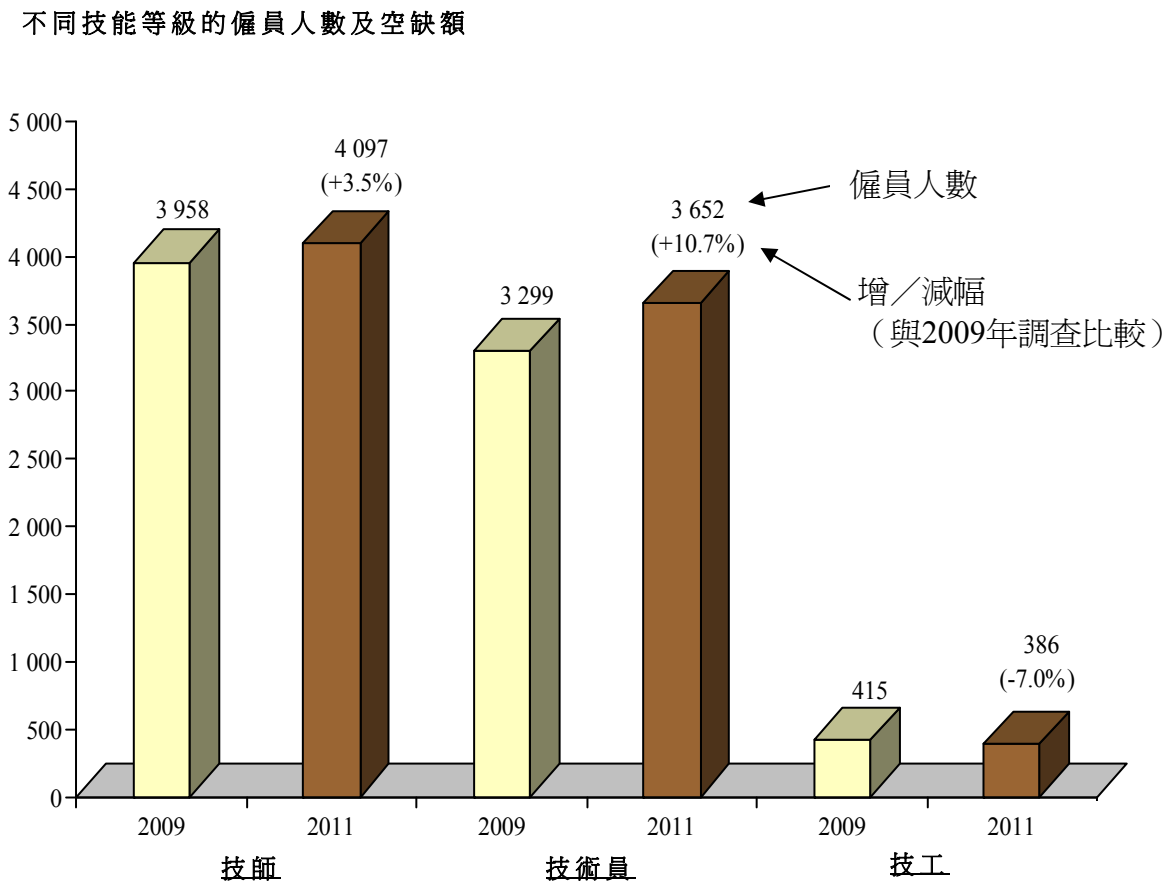
(iv) 過去三十年，業內機構將生產設施大規模遷離香港，技工級職務大部分已由內地工人擔任。因此，技工級的人力減少32.8%不足爲奇。

3.7 塑膠製造服務類別的人力佔業內僱員總數約13%。過去兩年，此類別的僱員人數增加約21%（由2009年的1 039人增至2011年的1 253人）。與2009年比較，2011年

的技師及技術員人數分別增加約17%及37%。至於技工人數，則由2009年的83人增至2011年的103人。

各技能等級的人力分析

圖 3.B : 比較2009與2011年不同技能等級的僱員人數



3.8 過去兩年，技師級的整體人力錄得3.5%的增幅。九個技師級的主要職務中，產品工程師（塑膠業）和製造／工業工程師分別減少了約19%及7%，但其餘七個職務的人力分別有1.3%至30%的增幅。其中品質管制／品質保證工程師、電腦輔助設計 — 電腦輔助生產工程師／工具工模工程師和電子／電機工程師的人力，分別增加了19%、21%及30%。現今的技師需對整個製造過程有全面的了解和知識，而不是只專精某個技術範疇。

3.9 技術員級方面，過去兩年的整體人力錄得10.7%的升幅。品質管制／品質保證技術員、實驗室／塑料技術員、生產策劃員的人力維持往年的升勢，於2009至2011年間，分別增加了18%、36%及45% 。增幅在「玩具進出口」類別尤其顯著，反映玩具製造商在加強產品測試及環保包裝方面投放了更多資源，務求符合海外市場的安全／環保規例。另一方面，機械工程技術員、電腦輔助設計 — 電腦輔助生產技術員（工模）的人力情況卻相反。調查結果顯示，兩者的人力大幅減少，分別下挫 34% 及 54%。這

些主要職務的人力之所以縮減，可歸因於香港僱員的廠房技術職務，已逐漸被內地工人取代。

3.10 技工級方面，整體人力在過去兩年持續下跌約7%。除了裁剪技工（塑膠／布料）和品質檢查工之外，幾乎所有職務均錄得跌幅。其中電器技工、校機技工、工具及五金工模工更分別下跌43%、48% 及 50%。隨着生產設施於過去三十年來紛紛遷離香港，技工級職務大部分已由內地工人擔任。

業務前景

3.11 塑膠業一直面對各種挑戰，特別是目前歐洲面臨經濟衰退，新興市場又增長疲弱，令環球經濟前景動盪不穩。雖然如此，香港企業已隨機應變，將企業轉型升級，持續提升生產能力及品質，務求向中、高檔市場邁進；

3.12 歐元區持續傳來利淡消息，美國經濟又增長緩慢，仍在香港的製造廠商或會因而加快遷往中國內地及其他國家。而已在珠江三角洲營運的企業，如搬遷到內地較落後地區或鄰近國家或有助減低勞工成本，並聘請到半技術工人。不過，他們可能同時遇到難以留住及物色幹練技術員和管理人員的問題，而且運輸及其他成本也會增加；

3.13 過去多年中國央行容許人民幣兌美元的匯價累計上升約21%。不過，隨着2008年環球經濟危機的影響浮現，中國已停止讓人民幣升值。2010年6月，中國重新讓人民幣升值，直到2011年11月，人民幣兌美元匯率上升8%。根據香港貿易發展局一名經濟師的分析，如人民幣兌美元匯價升值4%，製造商的生產成本就會增加2%；

3.14 由於中國經濟持續暢旺，內地沿岸省份近年一直面對勞工短缺的問題。2011年，廣東省官方及傳媒估計，廣東省約短缺一至二百萬名工人。結果過去兩年工廠工資急升，尤其是勞工密集型工業；

3.15 中國內地的新《勞動合同法》於2008年頒布，大大改變了工人和僱主簽訂合同的條件，並讓工人對其工作條件有更大的影響力。過去中國政府視低成本採購、廉價出口製造爲國家下輪經濟增長的基礎，新法例顯示這種看法已經改變。中央及廣東省政府均在推動產業升級，業界已感受到其影響；

3.16 新《企業所得稅法》於2008年生效，統一了中國本地和外資企業的稅務待遇。其後國家稅務總局發出多則稅務公告，以處理該法例的執行及管理問題。法例生效後免稅期取消，稅率優惠減少，香港的中小型製造商這幾年已逐漸適應有關轉變；

3.17 產品安全是業界近年面對的重大挑戰。歐盟和美國已採取更嚴厲的安全標

準，規管產品設計、標籤及可能有害物質（如鄰苯二甲酸酯、鎘）的准許限度。業界已與相關官員討論一些會嚴重衝擊行業的規則，並且舉辦論壇及研討會，以協助同業遵守新規例；

3.18 基於行業使用大量塑膠來製造和包裝產品，海外及內地的環保人士非常關注，憂慮即使業界致力使用可循環再造塑膠物料，仍會製造出大量廢物；

3.19 業內大部分製造工序較爲勞工密集，除了啤塑及壓注工作外，很多工序都難以自動化。換言之要保持競爭力，必須維持低勞工成本，同時要有源源不絕的工人供應。爲此，有些企業已遷出珠江三角洲的傳統製造區，搬往韶關或廣東其他山區，那裡可更容易以較低工資聘用半農村勞工。不過，那些新地點較遠離香港口岸，令物流較爲不便，費用增加。物流成本和是否鄰近等考慮因素，需與勞工成本及工人來源一併小心衡量。鑒於內地的生產成本飆升，香港一些企業計劃進一步將生產基地搬遷到成本更低的東南亞國家；

3.20 玩具承包製造屬商品業務，只從事原設備製造*[OEM]*的企業，其壽命、利潤或增長可能有限，除非能爲顧客提供額外支援或超卓服務。這些企業須設法以優良表現或融合服務增值，不然將面對十分激烈的競爭；

3.21 香港企業面對種種挑戰：市場轉變、強勢的買家及持牌人、競爭加劇、工資及投入資源成本增加導致成本上升、人民幣升值、《勞動合同法》實施，以及出口加工政策的改變；

3.22 愈來愈多香港企業正以開發品牌產品作爲增值策略，有些是在香港及內地市場推出自家品牌，有些則是夥拍美國等其他市場上舉足輕重的公司推出品牌。合作品牌可讓香港企業藉着知名品牌快速進入大市場，獲取有助企業在其他市場建立自己品牌的知識，並可爲合作伙伴進行其他活動及提供服務（例如原設備製造）；

3.23 香港企業的其他增值方法，還有改進產品設計及運用新技術。在珠江三角洲，玩具業技術已頗爲先進，但比起大部分競爭對手，香港企業與國際企業進行貿易的歷史較長，並涉及更多方面業務，既能達到國際企業所要求的世界級製造水平，亦能符合各項嚴格的要求。部分香港企業已進行技術優化工程以保持優勢，其他則結合優秀工程和設計才能，爲產品增添新元素；

3.24 內地14歲以下的兒童估計有2億5 200萬人，香港玩具製造商都期望進軍內地這個需求龐大的市場。不少香港企業已開展小規模業務，嘗試了解內地消費者的要求，以及他們與傳統市場有何不同之處。可是，在中國銷售產品並非易事。香港玩具製造商打進內地市場有以下障礙：市場結構不成熟，分銷途徑不完善或難以接觸，規例欠清晰，枱底交易盛行，以及收款困難；

3.25 內地政府已推出一系列財政及稅務優待，以鼓勵本地企業（包括港資企業）搬遷、轉型及升級。此政策配合了國家「十二五」規劃擴大內需的策略重點。香港企業若要進入內地市場，可考慮銷售高檔產品，以及發展自家品牌及零售業務；

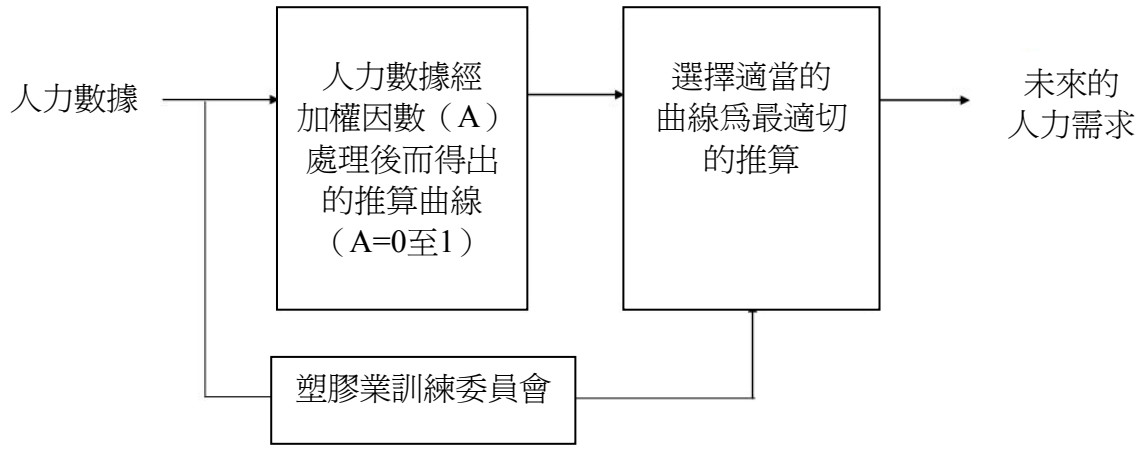
3.26 部分內地塑膠及玩具製造商已成功進入本地市場，銷售高檔產品以及發展品牌及零售業務。據悉，這些企業有意委託香港企業爲其品牌產品負責原設計製造*[ODM]*生產。內地企業轉型令外判工作增加，想專注生產業務的香港企業可留意因此而帶來的商機；

3.27 內地及鄰近地區在產品製造方面愈來愈具優勢，香港公司可考慮把訂單外判予這些公司，以提高整體的生產力；同時，可藉機集中資源和人力用以發展自身更具競爭優勢的範疇，如產品設計、顧客服務及國際營銷等，從而開發新的產品及產品組合，甚至拓展自家品牌業務，並打開內地的零售渠道；

3.28 電子技術發展一日千里，利用電子技術進行物料採購、生產管理、營銷採購、銀行及其他相關服務的情況日趨普及，有助使香港成爲全球重要的採購及商務中心，特別是塑膠產品方面。

未來人力需求

3.29 1997年之前的人力調查，本會一直採用「調節過濾法」*[AFM]*推算塑膠業未來的人力需求。AFM是一種用作趨勢分析的「曲線擬合」方法。下圖說明推算過程：

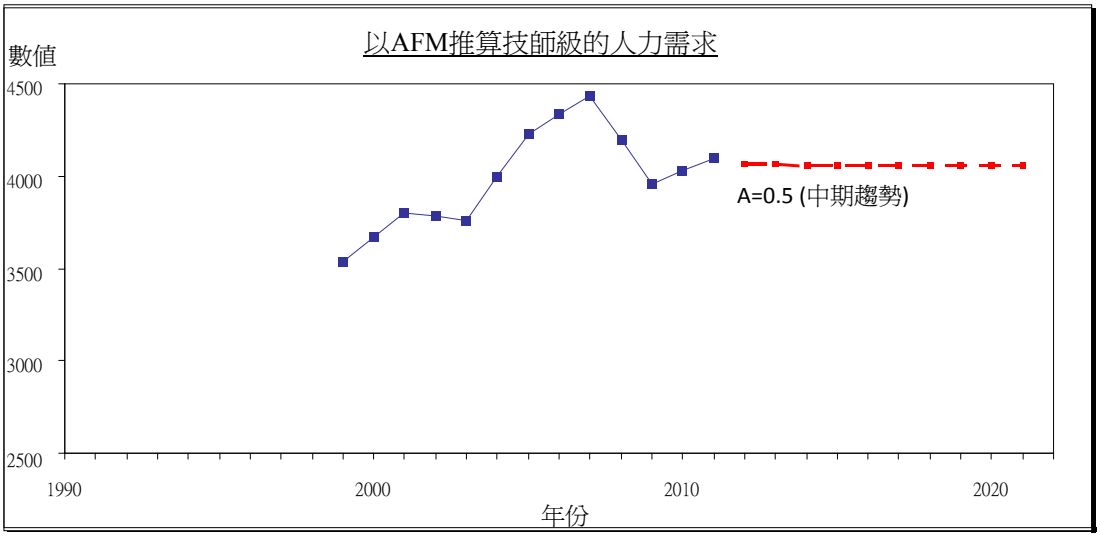


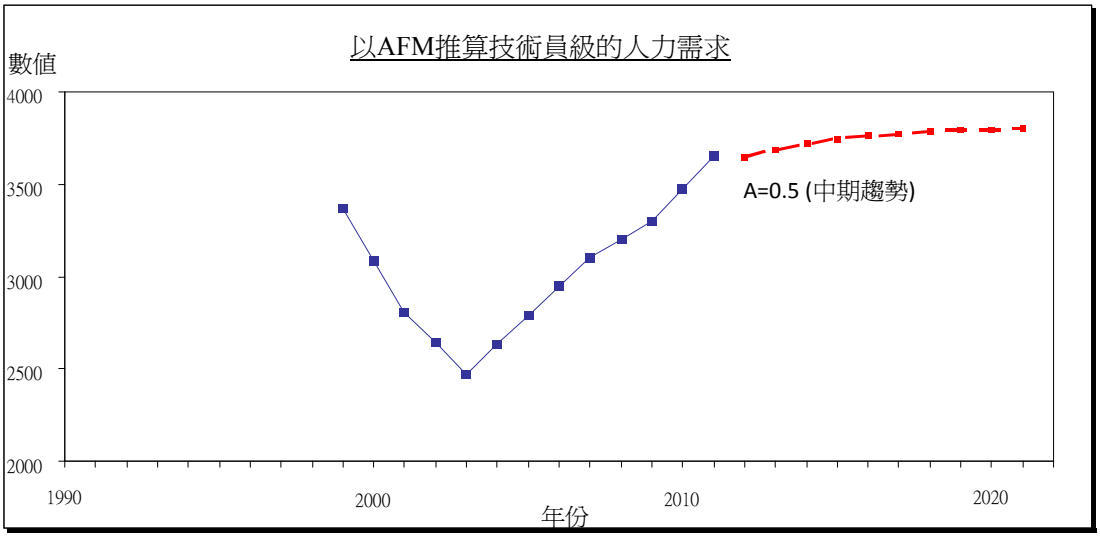
以往調查所得數據均經加權處理。偏重長期抑或短期趨勢，取決於加權因素（A）。（A）的數值愈高，表示近期的調查數據所佔權重愈大（即偏重短期趨勢）。本會考慮了多項因素，如市場趨勢、科技發展及其他社會及經濟變化，然後選取合適的（A）數值，從而推算業內各技能等級的人力需求。

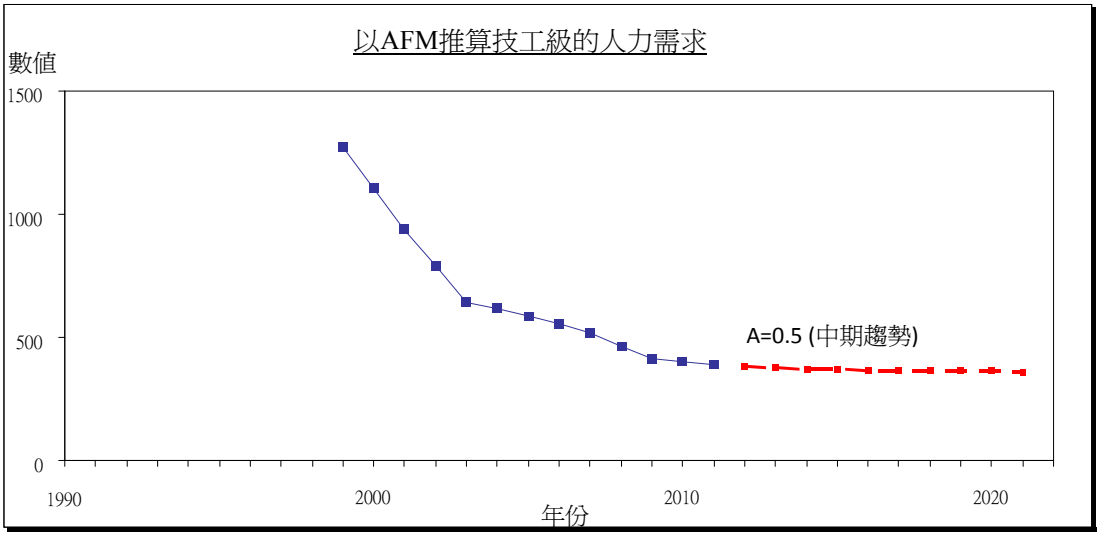
3.30 由1997年的人力調查開始，本會決定擴大調查範圍，在評估未來趨勢及人力需求時，將塑膠製造及貿易兩個類別合併爲單一類別考慮。由於調查範圍改變，AFM不再適用，本會遂改爲參考僱主對未來一年業界人力需求的預測，推算業內未來的人力需求。1997、1999、2001、2003及2005年的人力調查，均採用這方法推算未來的人力需求。

3.31 本會曾嘗試以「人力市場分析法」*[LMA]*推算塑膠業的人力發展趨勢，但經測試塑膠業相關的主要決定因素後，並未能建立有效的統計關係。因此，本會認爲LMA並不適用於是次調查的人力推算。這是修訂調查範圍後進行的第八次調查，而AFM屬趨勢分析預測法，較僱主的一年預測法更爲科學，本會因此決定，是次調查採用AFM進行人力推算。推算結果如下列圖表所示：

圖 3.C : 以AFM推算不同技能等級的人力需求







3.32 爲協助本會確定技師、技術員及技工的流失率（即因退休、移民或轉行等原因而離開本業的僱員比率），本會數年前曾進行一項關於「塑膠業技術僱員離職原因」的小規模郵遞式調查。經評估調查結果後，本會決定採用以下流失率推算人力：技師爲5%，技術員及技工均爲4%。

3.33 按照第3.31及3.32段所定，本會預計未來四年，爲應付以上三個技能等級的人力增長及流失，業界平均每年需培訓的人數見表3.D：

表 3.D : 未來四年（2012至2015年）平均每年訓練需求

技能等級	平均每年需求人數
技師	175 - 214
技術員	153 - 187
技工	10 -15

業內各主要職務的詳細訓練需求載於附錄5。

3.34 鑑於其他行業內部分僱員從事的工作與塑膠業密切相關，本會決定在是次人力調查報告中收錄這方面的人力資料。由於金屬業訓練委員會、電子業及電訊業訓練委員會已在各自的人力調查中蒐集這些資料，有關僱員人數及這兩個訓練委員會建議平均每年需培訓的人數載於附錄6。

3.35 本會將於2013年進行另一次人力調查，蒐集塑膠業最新的人力資料，並檢討培訓需求。

人力供求分析

3.36 在技師級方面，業界平均每年需培訓額外221至270名具備機械／製造工程背景的僱員（不包括塑膠業的電子／電機工程師，但包括金屬業的製造／生產／工業工程師及電子業的製造／品質保證工程師）。

3.37 根據本地大專院校及職業訓練局所提供的資料，機械／製造／工業工程學科的預計畢業生人數（包括學士學位及高級文憑畢業生）摘要載於表3.E。估計2012及2013年分別約有1 519及1 194名畢業生可勝任塑膠業及其他行業的技師級職務。然而，讀者須注意，有些僱主傾向聘請高級文憑畢業生擔任技術員級職務。此外，近年的高級文憑畢業生約有30%至40%選擇繼續升學，取得學士學位後才投身職場。因此，投身業界擔任技師級職務的實際畢業生人數，應較表3.E所列的數字爲少。

表 3.E : 機械／製造／工業工程技師級課程畢業生人數

院校	所頒學位／文憑	預計畢業生人數	
		2012	2013
本地大學	學位	950	800
	高級文憑	50	30
香港專業教育學院	高級文憑 – 商貿工程	54	30
	高級文憑 – 工程管理	78	47
	高級文憑 – 機械工程	198	155
	高級文憑 – 產品設計工程	101	70
	高級文憑 – 產品測試	88	62
	總數	1 519	1 194

3.38 除了繼續進修或移居外地，上述畢業生可投身塑膠業以外多個行業，例如金屬、電子、電機及服務業等。要吸引具備適切才幹的畢業生投身塑膠業，本會建議僱主爲這批年輕畢業生提供良好的聘用條件及就業前景，並安排他們參加相關的在職及職外培訓，藉以提升畢業生的技術知識及技能，並在機構內推動終身學習的風氣。

3.39 在技術員級方面，監督／管工通常由資深組長或技工晉升；電子／電機工程技術員及實驗室／塑料技術員職位，則會招聘其他學科的畢業生。計及金屬業所需的製造／工業工程技術員及電子業所需的製造／品質保證技術員，塑膠業及其他行業對具備機械／製造／工業工程背景技術員的需求，預計每年爲164至201人。

3.40 機械／製造／工業工程學科技術員畢業生人數的供應量，是根據職業訓練局屬下青年學院提供的資料而定。預計畢業生人數見表3.F。2012及2013年可投身塑膠業及其他行業的技術員畢業生分別約有46及57人。

表 3.F : 機械／製造／工業工程學科
技術員級課程畢業生人數

院校	所頒學位／文憑	預計畢業生人數	
		2012	2013
青年學院	中專教育文憑 – 電腦輔助產品工程	21	17
	中專教育文憑 – 機械工程	25	40
	總數	46	57

3.41 與技師級畢業生的情況相若，技術員畢業生除可繼續進修外，亦可從事其他相關行業。本會籲請僱主提供良好的聘用條件、就業前景、持續培訓及增值機會，以吸引更多畢業生投身塑膠業。

3.42 在技工級方面，製模技工、工具及五金工模工、樣本／模型／生產原型製造工等職務須聘用修畢機械或有關技工課程的畢業生。計及金屬業及電子業所需的相關技工，預計這些職務每年的人力需求爲41至51人。

3.43 自2009/2010年度起，中三畢業生可報讀職業訓練局屬下青年學院開辦的「中專教育文憑」*[DVE]*課程。DVE爲靈活的學分制課程，爲學生日後就業或升學做好準備。學生只要完成相關的單元，累積所需學分，就可取得基本技工證書*[BCC]*、技術員基礎證書*[TFC]*或DVE資歷。持BCC資歷的學生可擔任塑膠業的技工職務，而持TFC者則可填補技術員職級的空缺。表3.G列出中三畢業生報讀有關機械／製造／工業工程DVE課程的人數。假設平均而言，選擇考取BCC學歷後離校就業的學生於一年內完成課程，2011及2012年獲取錄修讀DVE課程的部分學生，就可於2012及2013年加入塑膠業成爲技工。與表3.D 推算的技工級平均每年訓練需求比較，本會留意到只要電腦輔助產品工程分流及機械工程分流的DVE學生有不少於10%選取BCC學歷，並投身塑膠業，則2012及2013年將有充足的技工供應。

表 3.G : 錄取中三畢業生的機械／製造／工業工程
DVE課程之收生人數

院校	課程	收生人數	
		2011	2012
青年學院	中專教育文憑－ 電腦輔助產品工程	78	60
	中專教育文憑－ 機械工程	140	120
	總數	218	180

3.44 DVE課程 － 機械工程分流教授一般機械技術，部分畢業生會受僱於電機及機械／屋宇設備機構。本會鼓勵僱主聘用這些畢業生，並進一步提供在職訓練，使他們成爲合資格技工。

第四章

建議

4.1 過去二十多年，塑膠業一項最重大的發展，是廠商將生產設施遷往或設於珠三角區。事實上，不單是塑膠業，珠三角亦已成爲本港各行業廠商的生產基地。目前，本地公司正朝著產品開發與物流控制中心的方向發展，爲內地廠房提供支援。除了集中處理市場推廣及財務工作，本地公司亦逐漸轉型爲創新設計中心，一方面推出自己的品牌，另方面亦爲海外客戶提供設計。塑膠業亦爲其他相關行業的產品提供塑膠零件及元件，發揮重要作用。本業一直透過技術提升致力改進及開發新技術，這無疑亦大大促進其他相關行業的發展。本會認爲，要應付業內的發展需要，僱主除了投資於先進科技（例如機械及電腦軟件），以便爲全球市場開發及製造高增值的新產品外，亦需有足夠訓練有素的人力，才能維持業務進一步增長和發展。

每年取錄的受訓者人數

4.2 調查期間，本業共有6名受訓者，其中3名屬技師級、1名屬技工級、2名屬操作工級。

4.3 根據自1999年起收集所得的統計數據，以及採用「調節過濾法」得出的推算，本會建議塑膠業推行人力培訓計劃，規模如表4.A 所示：

表 4.A : 建議未來四年（2012 - 2015年）
每年取錄的受訓者人數

技能等級	建議每年取錄人數
技師	175 – 214
技術員	153 – 187
技工	10 – 15

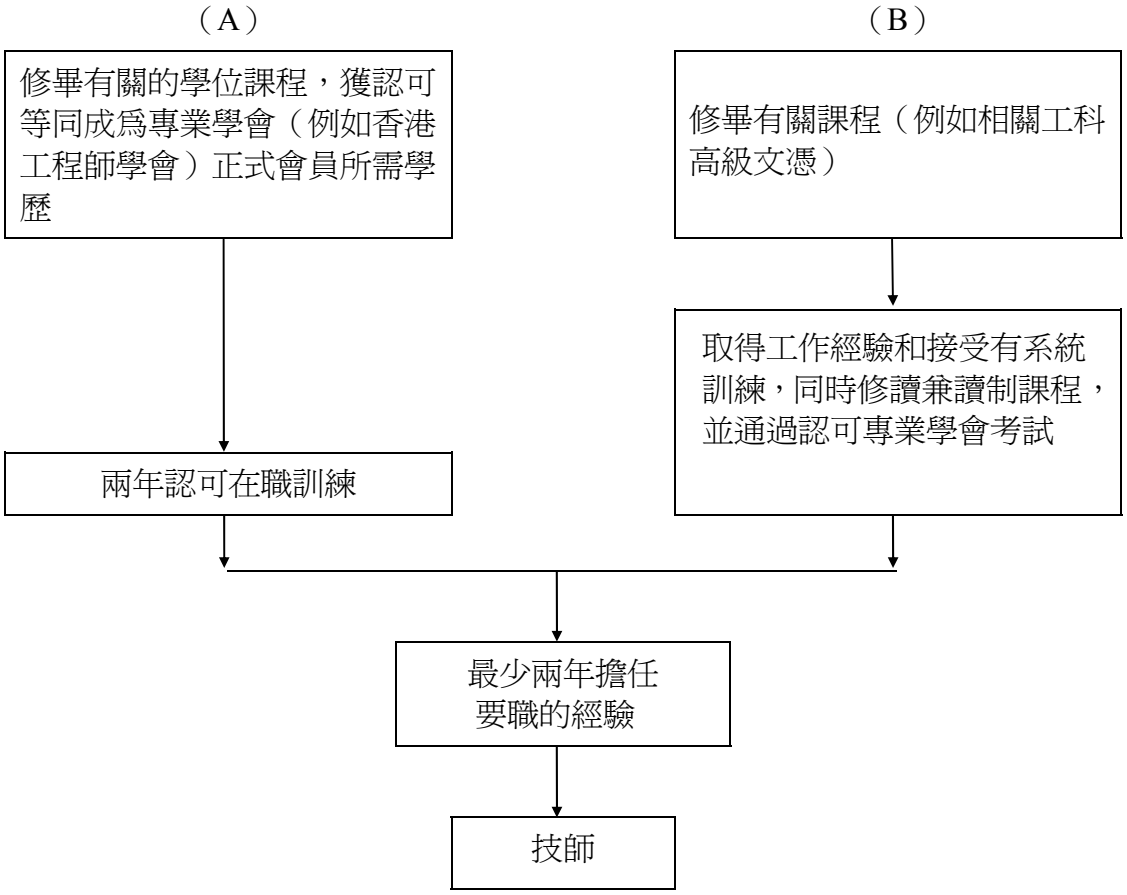
表4.A內各技能等級主要職務的細分數字見附錄5。

4.4 僱主爲機構進行人力策劃時，請注意表4.A所列的每年平均受訓人數，分別約爲現時技師、技術員及技工人數的4.7%、4.7% 及 2.8% 。

技師訓練

4.5 技師應具備專業學會正式會員所需的資格及經驗，能運用其知識及技能，推動實務發展工作，並有能力分析和解決各種技術問題。此外，技師須負責發展及應用工程原理；發揮創意和判斷力；經常留意本行的科技發展；運用現代管理技巧；以及督導和培訓下屬。

4.6 技師在改善管理及引進新科技方面，均擔當重要角色。本會建議循下列途徑訓練技師：



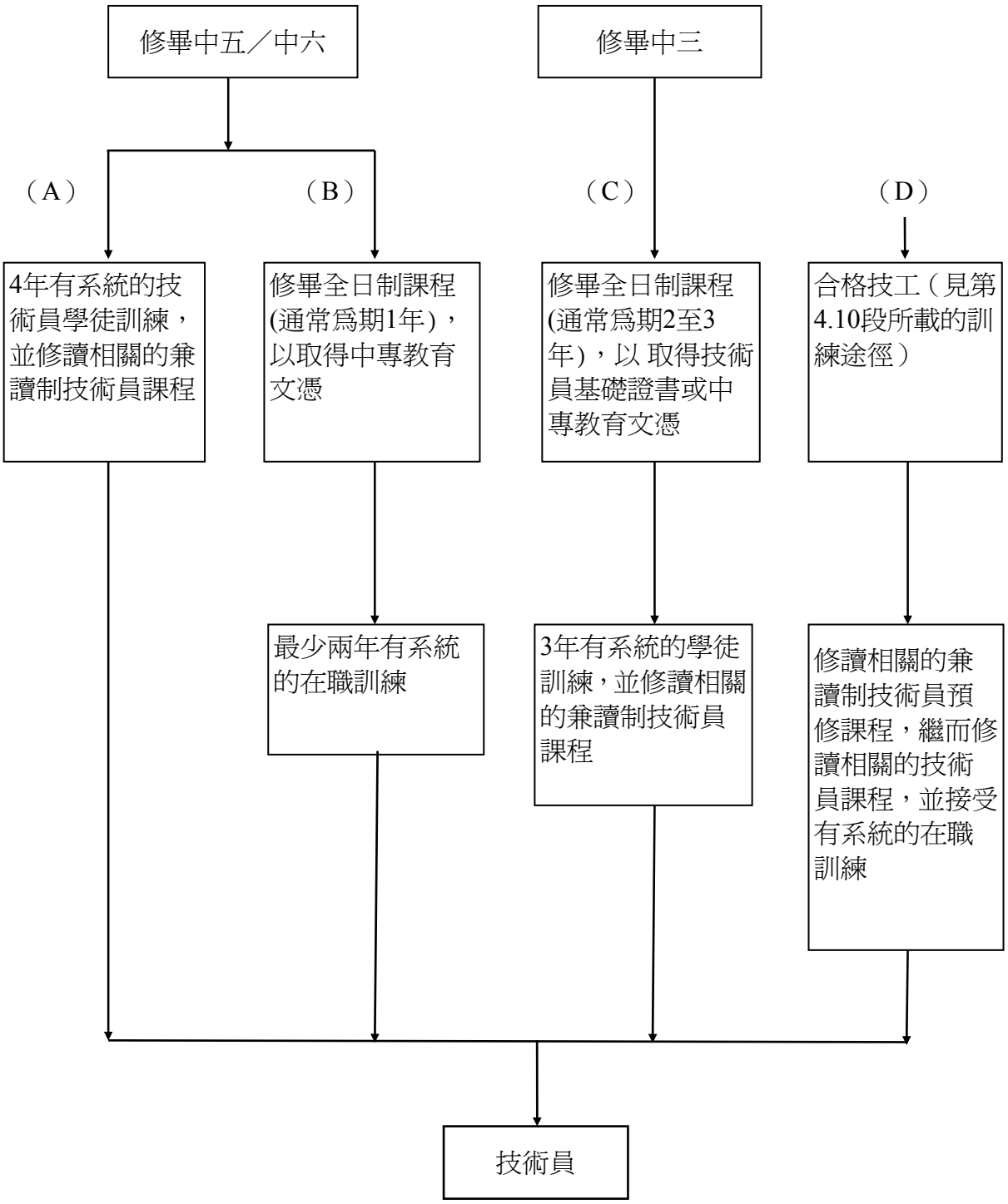
工科畢業生訓練計劃

4.7 職業訓練局屬下技師訓練委員會推行工科畢業生訓練計劃，爲工科畢業生提供更多有系統的實務訓練機會。有關訓練獲得資助，爲期18個月，程度符合成爲香港工程師學會正式會員的要求。受訓者每月可透過僱主獲得津貼，作爲部分薪金，而技師訓練委員會則負責監察訓練進度。此外，職業訓練局的技師訓練組亦提供免費的工科畢業生職位介紹服務，協助僱主招聘畢業生，同時亦幫助畢業生取得受訓機會。該組亦會就各種有關工科畢業生的受訓事宜，向僱主提供協助。本會籲請僱主參與該項計劃，並利用技師訓練組所提供的服務。

技術員訓練

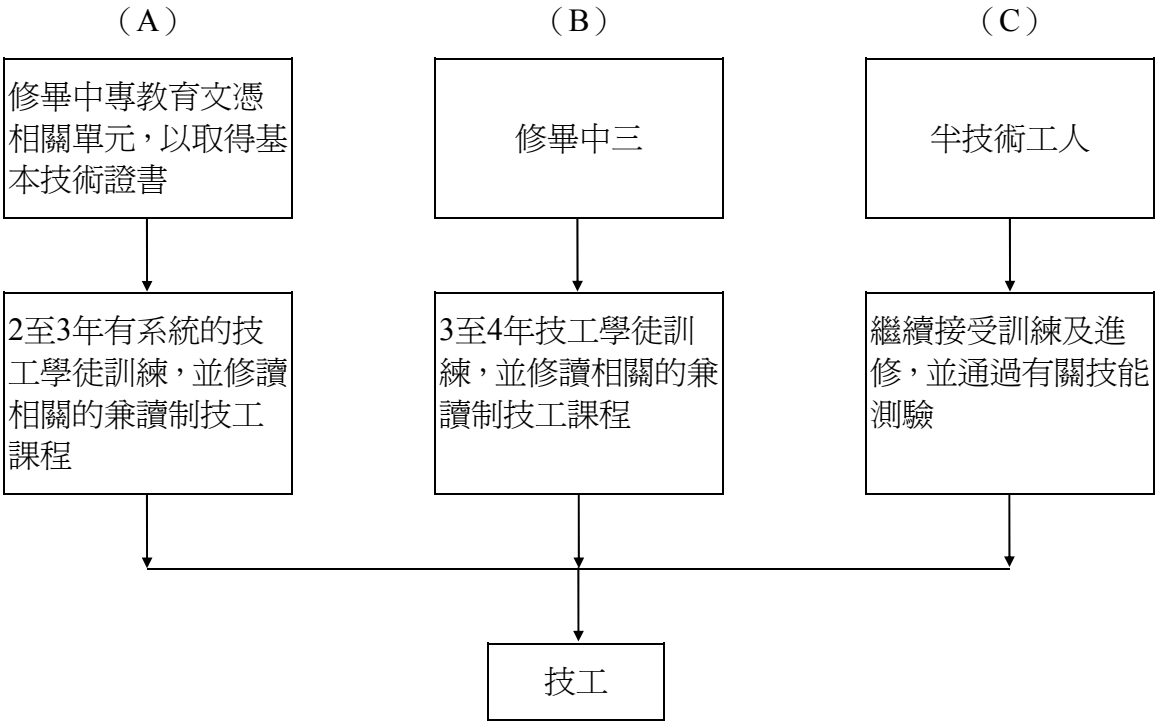
4.8 技術員應具備一定教育程度、實務技能和經驗，能夠在技師的督導下，運用已確立的技術和方法，完成技術性工作。訓練技術員一般可循下頁所列的四個途徑。

4.9 香港專業教育學院於1999年成立，乃由職業訓練局屬下科技學院與工業學院重組而成，提供高級文憑、文憑及證書課程，而中專教育文憑課程(DVE)也爲中學離校生提供技術員級的培訓。香港專業教育學院及卓越培訓發展中心(精密工程業)開辦的課程，其中不少均適合塑膠業的技術人員及學徒修讀，上課模式包括全日制、日間部分時間給假調訓制及夜間兼讀制。


修畢中五／中六
修畢中三
（A）
（B）
（C）
（D）
4年有系統的技術員學徒訓練，並修讀相關的兼讀制技術員課程
修畢全日制課程(通常爲期1年)，以取得中專教育文憑
修畢全日制課程(通常爲期2至3年)，以 取得技術員基礎證書或中專教育文憑
合格技工（見第4.10段所載的訓練途徑）
最少兩年有系統的在職訓練
3年有系統的學徒訓練，並修讀相關的兼讀制技術員課程
修讀相關的兼讀制技術員預修課程，繼而修讀相關的技術員課程，並接受有系統的在職訓練
技術員

技工訓練

4.10 技工是指在所屬行業內，能夠將本身技能廣泛應用於執行職務的技術工人。技工不單要有實際技能，亦需具備相關的理論知識，才能適應科技發展。訓練技工一般有三個途徑：



4.11 本會建議採用途徑（A），因爲訓練期較短，而且取得基本技術證書的畢業生已接受基本技術訓練，於參加學徒訓練計劃後很快便能投入工作，亦較易適應業內的工作環境。

4.12 技工級的「校機技工」一職，通常是提升富經驗的注塑機操作工擔任；他們均修畢有關的注塑機調校技術短期課程，或透過多年工作經驗掌握到所需技術。另一方面，「品質檢查工」多招聘中五畢業生擔任，因他們透過在職訓練及修讀相關的兼讀制課程，可掌握檢查塑膠產品及有關元件的專業知識和技能。

工業教育及訓練機構

4.13 本港幾間高等教育院校及香港生產力促進局，均有開辦多項與塑膠業有關的全日制、日間部分時間給假調訓制及夜間兼讀制訓練課程。同時，職業訓練局屬下香港專業教育學院和卓越培訓發展中心(精密工程業)，亦開辦多種類型的兼讀制增修課程。本會籲請僱主充分利用這些院校及機構的訓練設施，保送員工修讀有關課程，以提升他們的專業知識及技能。此外，這些院校及機構所舉辦的研討會／研習班，不但能協助僱主吸收科技新知，亦對技術人員有所裨益。

4.14 爲應付塑膠業的發展需要，從業員必須不斷進修、終身學習，而僱主認同僱員在進修上的需要亦同樣重要；僱主應鼓勵僱員修讀增修／訓練課程、參加研習班或研討會，以學習先進科技。

職業訓練局屬下的卓越培訓發展中心

4.15 本會亦須提供意見，協助卓越培訓發展中心（精密工程業）發展培訓服務。中心於2000年7月成立，由塑膠業訓練中心與精密工具製造訓練中心合併而成，設於職業訓練局九龍灣大樓內。中心與青年學院提供下列全日制課程，爲本業培訓新血：

課程名稱	程度	訓練期
中專教育文憑課程-電腦輔助產品工程	技術員	1 至 3 年

4.16 除上述全日制課程外，中心亦爲塑膠業從業員提供多項全日制、日間部分時間給假調訓制及夜間兼讀制訓練課程，目的是培訓本地從業員，以配合本港知識型經濟的發展。課程內容包括不同範疇，如電腦數控機械加工技術；精密模具設計及製造；產品設計／發展；電腦輔助工業設計／設計／製造／工程；產品／生產資料管理；產品測試／評估；品質管理；物料發展／篩選；流程設計／篩選；產品與項目工程等。

4.17 爲應付業內中小型企業的訓練需求，卓越培訓發展中心(精密工程業)繼續舉辦電腦輔助設計／製造／工程課程，協助中小型企業訓練技術人員，使能有效應用有關先進軟件。課程學員會分別在中心與受僱機構接受實務訓練。

4.18 本會籲請業內僱主全力支持各訓練中心的工作，僱用中心的學員爲學徒或見習員，並保送屬下員工修讀相關的增修課程，以提升其工作技能。

職業訓練局的相關培訓服務

4.19 職業訓練局籌辦下列多項訓練計劃，協助僱主培訓人才:

(i) 法定的**學徒訓練計劃** － 技術員及技工可透過該計劃接受有系統的訓練，以應付業內需求；

(ii) **工科畢業生訓練計劃** － 協助工科學生及畢業生完成工程師所需的專業訓練；

(iii) 自願性質的**技能測驗及證書頒發制度** － 旨在確立及認可技術工人的水平。本會自 1990 年起一直有舉辦製模技工技能測驗，近年更爲不同電腦數控加工工種增辦技能測驗；

(iv) **新科技培訓計劃** － 資助本地機構保送僱員學習新科技，資助金額最高可達訓練費用的 50%。計劃涵蓋各類訓練模式，包括海外訓練課程或實習、本地訓練課程，以及專爲個別機構而設的本地訓練課程／實習。

4.20 會建議僱主在擬定訓練計劃和僱用受訓者時與職業訓練局聯絡，以取得協助。

於珠三角舉辦訓練課程

4.21 由於本港塑膠業的生產設施大部分設於珠三角，僱用的內地工人超過540 000名，其中約有5 700名爲工程師。此外，本地僱主亦派駐員工往內地廠房，每年外派6個月以上的各技能等級人數約爲：技師400人；技術員200人（詳情見第2.10 及2.11 段）。這些數字顯示，在珠三角區工作的員工，無論是本地員工或內地員工，都有極大的訓練需求。因此，卓越培訓發展中心(精密工程業)已在當地提供訓練課程，特別是有關塑膠壓注模塑科技、電腦數控加工及電腦輔助設計／電腦輔助生產科技、塑料知識及工程繪圖標準的訓練，爲港資企業服務；課程按成本收費，務求爲港商提供積極的支援，配合他們在當地的訓練需求。

備註

4.22 讀者請留意，是次人力調查只覆蓋塑膠業內主要類別，詳情見本報告第1.6段所述調查範圍。調查報告內的人力數字，並不包括調查範圍以外的製造門類，例如汽車零件、鐘表、電機及電子、裝修物料等。本會明白在現今社會，幾乎每一門工業均需採用塑膠。然而，礙於資源所限，調查只可覆蓋聘用最大量塑膠業技術僱員的類別。

PLASTICS TRAINING BOARD

Membership
(As at 31 December 2011)

Chairman:

Mr CHU Kwan-lam, Locky, MH	nominated by a Plastics Mould Manufacturing Company

Vice-Chairman:

Mr CHEUNG Tat-choi, Stanley	nominated by a Plastic Product Trading Company

Members:

Mr CHAN Hoo-wai, Edward	nominated by a Small and Medium Enterprise (SME) company
Mr CHAN Wai-man, Raymond	nominated by the Chinese Manufacturers' Association of Hong Kong
Mrs CHEUNG Augusta, BH	nominated by the Hong Kong Plastics Manufacturers Association Limited
Dr CHIN Kwai-sang	nominated by a Local University
Mr HUNG Sze-wai	nominated by the Hong Kong and Kowloon Plastic Products Merchants United Association Limited
Mr IP Ki-cheung, Herbert	Ad Personam
Prof LAM Chuen-chun, David	nominated by a Local University
Mr LEE Yuk-pui, Leton	nominated by the Hong Kong Mould and Die Council
Mr LEUNG Wing-cheung	nominated by a Plastics Machinery Manufacturing Company
Mr LOUIE Chi-hang, Derek	nominated by the Hong Kong Productivity Council

Mr LUK Pak-shing, Bondi	nominated by the Federation of Hong Kong Industries
Mr NG Ka-ho	nominated by the Chiu Chau Plastic Manufacturers Association Company Limited
Mr NG Ping-hong	nominated by the Hong Kong and Kowloon Rubber & Plastic Workers General Union
Mr LAU Ping-cheung	representative of the Commissioner for Labour
Mr CHONG Vai-keong, Steven	representative of the Director-General of Trade and Industry
Dr FUNG Kin-keung, Michael	representative of the Executive Director, Vocational Training Council

In-attendance:

Mr HO Ching-tak, Joe	representative of the Hong Kong Institute of Vocational Education
Mr ANG Swee-hock, Lawrence	Manager-In-Charge, Pro-Act Training and Development Centre (Precision Engineering)

Secretary:

Mr LAM Chi-piu, Angus	Vocational Training Council

附錄 1

塑膠業訓練委員會

委員名單
(2011 年 12 月 31 日)

主席：

朱鈞林先生, MH	(某塑膠模具製造公司提名)

副主席：

張達材先生	(某塑膠產品貿易公司提名)

委員：

陳浩偉先生	(某中小型企業公司提名)
陳偉文先生	(香港中華廠商聯合會提名)
張崔賢愛女士, BH	(香港塑膠業廠商會提名)
錢桂生博士	(本地某大學提名)
洪思偉先生	(港九塑膠製造商聯合會提名)
葉紀章先生	(獨立人士)
林銓振教授	(本地某大學提名)
李煜培先生	(香港模具協會提名)
梁永祥先生	(某塑膠機械製造公司提名)
雷致行先生	(香港生產力促進局提名)
陸百勝先生	(香港工業總會提名)
吳家豪先生	(潮僑塑膠廠商會有限公司提名)
吳炳康先生	(港九樹膠塑膠業總工會提名)

劉炳昌先生　　(勞工處處長代表)

鍾偉強先生　　(工業貿易署署長代表)

馮建強博士　　(職業訓練局執行幹事代表)

列席者：

何正德先生　　(香港專業教育學院)

洪瑞福先生　　(卓越培訓發展中心（精密工程業）)

秘書：

林之彪先生　　(職業訓練局)

Appendix II

PLASTICS 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 Pro-Act 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 IVE and Pro-Act 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 element.

8. To tender advice in respect of skill assessments, trade tests and certification for in-service workers, apprentices and trainees, for the purpose of ascertaining that the specified skill standards have been attained.

9. To advise on the conduct of skill competitions in key trades in the industry for the promotion of vocational education and training as well as participation in international competitions.

10. To liaise with relevant bodies, including employers, employers' associations, trade unions, professional institutions, training and educational institutions and government departments, on matters pertaining to the development and promotion of vocational education and training in the industry.

11. To organise 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 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.

附錄 2

塑膠業訓練委員會

職權範圍

1. 確定業內的人力需求，包括收集、分析相關的人力和學生／學員統計數字，以及關於社會經濟、科技及人力市場發展的資料。
2. 評估及研究本業的人力供求是否平衡。
3. 就發展業內專業教育及訓練設施應付人力需求，向職業訓練局提供意見。
4. 就相關學科的課程發展方向及策略，向香港專業教育學院(IVE)、卓越培訓發展中心提出建議。
5. 就 IVE、卓越培訓發展中心的課程策劃、課程發展及質素保證制度提供意見。
6. 擬訂本業主要職務的工作範圍，界定所需的技能、知識及訓練。
7. 建議本業主要職務訓練方案，訂定每種技能所需的訓練期。
8. 對技術評估、技能測驗及證書頒發制度提供意見，以確定從業員、學徒及見習員的技能水平。
9. 就本業主要行業舉辦技能比賽提供意見，以推廣專業教育與訓練和派員參加國際賽事。
10. 就本業專業教育及訓練的發展與推廣事宜，與僱主、僱主聯會、工會、專業團體、訓練及教育機構、政府部門等聯絡。
11. 爲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。

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

VOCATIONAL TRAINING COUNCIL
職 業 訓 練 局

THE 2011 MANPOWER SURVEY OF THE PLASTICS INDUSTRY
塑膠業2011年人力調查

QUESTIONNAIRE
調 查 表

PLEASE READ THE EXPLANATORY NOTES BEFORE COMPLETING THIS QUESTIONNAIRE
填 表 前，請 參 閱 附 註

For Official Use Only:
此欄毋須填寫

Rec. Type	Survey Code	Industry Code	Establishment No.	Enumerator's No.	Editor's No.	Check Digit	No. of Employees Covered by the Questionnaire
1	0 8						
1	2 3	4 5 6 7 8 9	10 11 12 13 14 15	16 17	18 19	20 21 22	23 24 25 26 27

NAME OF ESTABLISHMENT: _____
機構名稱

ADDRESS: _____
地 址

TYPE OF BUSINESS/
TYPE OF PRODUCTS: _____
業務性質／產品

TOTAL NO. OF
PERSONS ENGAGED: _____
僱員總人數

NAME OF PERSON TO CONTACT: _____ (28–47)
聯絡人姓名

POSITION: _____
職 位

TEL. NO. : _____ (48–55) - _____ (56–63)
電 話

FAX NO.: _____
圖文傳真

E-MAIL: _____ (64–98)
電 郵

Part I 第一部份

	(A) Principal Job 主要職務			(B) Average Monthly Income 每月平均收入	(C) No. of Employees at Date of Survey (Excluding Trainees#) 現有僱員人數（受訓者#除外）	(D) No. of Vacancies at Date of Survey (Excluding Trainees#) 現有空缺額（受訓者#除外）	(E) Forecast of No. Employed 12 Months from Now (Excluding Trainees#) 預計十二個月後僱員人數（受訓者#除外）	(F) No. of Trainees# at Date of Survey 現有受訓者#人數
	Job Title 職稱 (Refer to Appendix C) (參考附錄C)	Rec. Type	Job Code 職稱編號 (Refer to Appendix C) (參考附錄C)	Income Code* 收入編號				
			8 - 10	11	12 - 15	16 - 18	19 - 22	23 - 25
1		2						
2		2						
3		2						
4		2						
5		2						
6		2						
7		2						
8		2						
9		2						
10		2						
11		2						
12		2						
13		2						
14		2						
15		2						
16		2						
17		2						
18		2						
19		2						
20		2						

* Enter in column (B) the employee's average monthly income range according to the following codes:
請將僱員每月平均收入幅度按照下列類別編號填入 (B) 欄內：

Income Code 收入編號	Average Monthly Income Range 每月平均收入幅度
1	Under $7,501 以下
2	$7,501 - $10,000
3	$10,001 - $15,000
4	$15,001 - $20,000
5	Over $20,000 以上

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。

Reference of Job Code and Job Title

TECHNOLOGIST LEVEL 技師級

101	Product Engineer (Plastics)	產品工程師（塑膠業）
102	Manufacturing/Industrial Engineer	製造／工業工程師
103	CAD or CAM Engineer/ Tooling Engineer	電腦輔助設計或電腦輔助生產工程師／工具工模工程師
104	Project Engineer	策劃及統籌工程師
105	Costing Engineer	成本工程師
106	Q.C./Q.A. Engineer	品質管制／品質保證工程師
107	Electronics/Electrical Engineer	電子／電機工程師
108	Technical Services Engineer	技術支援工程師
109	Moulding Engineer	啤塑工程師

TECHNICIAN LEVEL 技術員級

201	Supervisor/Foreman	監督／管工
202	Mechanical Engineering Technician	機械工程技術員
203	Electronics/Electrical Engineering Technician	電子／電機工程技術員
204	Q.C./Q.A. Technician	品質管制／品質保證技術員
205	Product/Packaging Development Technician	產品／包裝發展技術員
206	Laboratory/Materials Technician	實驗室／塑料技術員
207	Manufacturing/Industrial Engineering Technician	製造／工業工程技術員
208	Tooling Technician	工具工模技術員
209	CAD or CAM Technician (Tooling)	電腦輔助設計或電腦輔助生產技術員(工模)
210	Production Planner	生產策劃員

CRAFTSMAN LEVEL 技工級

301	Leader	組長
302	Electrician	電器技工
303	Mould and Die Maker	製模技工
304	Tool and Die Maker	工具及五金工模工
305	Pattern/Model/Prototype Maker	樣本／模型／生產原型製造工
306	Plastics Machine Setter	校機技工
307	Tailor (Plastics/Fabric)	裁剪技工（塑膠／布料）
308	Quality Control Inspector	品質檢查工

OPERATIVE LEVEL 操作工級

401	Blow Moulding Machine Operator	吹氣模塑機工
402	Film Blowing Machine Operator	吹膜機工
403	Injection Moulding Machine Operator	壓注模塑機工
404	Vacuum Forming Machine Operator	真空吸塑機工
405	Other Plastics Processing Machine Operator	其他塑膠加工機操作工
406	Power Press Operator	動力沖壓機操作工
407	Printing Operator	印刷工
408	Assembler	裝配工
409	Seamstress/Sewing Machine Operator	縫工

GENERAL WORKER (UNSKILLED) LEVEL 雜工（非技工）級

501	General Worker	雜工

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

Internal Promotion
內部晉升

Q1. 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 由其他職位晉升至技工
3			
1	8 9 10	11 12 13	14 15 16

Technical Staff Outside Hong Kong
任職香港以外的技術人員

Q2. Please enter below the number of technologists, technicians and craftsmen who had worked for **more than 6 months** outside Hong Kong in the **past 12 months**
請填寫**過去十二個月內**，在香港以外任職**超過六個月**的技師、技術員及技工人數

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

Workers Working in Operations in Guangdong Province under Your Company's Control
由貴公司管理在廣東省機構工作的員工

Q3. Please enter below the total number of **Mainland workers** (excluding Hong Kong Residents) working in operations in Guangdong Province which manufacture products for your company and are under your company's control
請填寫在廣東省機構爲貴公司生產製成品，並由貴公司所管理的**內地員工**總數（不包括香港人）

26 27 28 29 30

Q4. Please enter below the number of **Mainland engineers** (excluding Hong Kong Residents) working in operations in Guangdong Province included in (Q3)
請填寫在廣東省機構工作，包括在 (Q3) 項內的**內地工程師**人數（不包括香港人）

31 32 33

Q5. Please enter below the forecast of **Mainland engineers** (excluding Hong Kong Residents) working in operations in Guangdong Province **12 Months from Now**
請填寫預計**十二個月後**在廣東省機構工作的**內地工程師**人數（不包括香港人）

34 35 36

Operations Relating to Plastics Industry Set Up in China Other Than Guangdong Province
除廣東省外，在中國其他省份成立與塑膠業有關的營運機構

Q6. Other than Guangdong Province, has your company set up any other operations in China relating to plastics industry?
除廣東省外，貴公司有否在中國其他省份成立任何與塑膠業有關的營運機構？

Yes 有	No 否
37	38

(Please tick as appropriate)
(請在適當的格內填上✓號)

For official use only
此欄毋須填寫

Q1	Q2	Q3 - Q5	Q6
39 40 41	42 43 44	45 46 47	48

49 50

Q7. Education and Training an Employee Should Have
僱員宜有的教育及訓練

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
51	52	53	54	55	56	57	58	59

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
1	Degree or equivalent 大學學位或相等學歷
2	Associate Degree 副學位
3	Higher Diploma 高級文憑
4	Diploma 文憑
5	Higher Certificate 高級證書
6	Craft Certificate 技工證書
7	Secondary 5 - Secondary 7 中五 - 中七
8	Secondary 4 or below 中四或以下

Code 編號	Training Mode 訓練方式
1	Graduate traineeship 工科畢業生訓練
2	On-the-job training 在職訓練
3	Apprenticeship 學徒訓練

Code 編號	Training Period 訓練時間
1	4 years or above 四年或以上
2	3 to less than 4 years 三年至四年以下
3	2 to less than 3 years 二年至三年以下
4	1 to less than 2 years 一年至二年以下
5	6 months to less than 1 year 六個月至一年以下
6	Below 6 months 六個月以下

End of questionnaire. Thank you for your co-operation.
問卷完，多謝合作。

The 2011 Manpower Survey of the Plastics Industry
塑膠業2011年人力調查

Explanatory Note
附 註

1. Please ignore the numbers in the row immediately beneath the boxes. They are purely for data processing.
每個方格下的編號只供資料處理之用，請毋須理會。

2. Before completing the questionnaire, please read carefully the job titles and job descriptions in Appendix C.
填寫調查表前，請參閱附錄C所列的職稱與工作說明。

3. Please insert a zero (0) for any column not applicable to your establishment.
請在貴機構不適用的各欄內填入(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 Plastics Industry Training Board can make meaningful recommendations to Government on how to meet training needs.
請填入準確的資料，因有關資料對於確定本業的人力需求極爲重要，而塑膠業訓練委員會亦將以此爲根據，向政府建議如何應付業內的訓練需求。

Part I
第一部份

5. Job Titles - Column "A"
職稱－"A"欄

   (a) Those job titles together with their appropriate codes of the principal jobs in the Plastics Industry have been pre-printed. Please refer to the job descriptions in Appendix C, and fill information of the columns ('B' to 'F') for those jobs applicable to your establishment.
   塑膠業主要職務的職稱及其職位編號已預印在表上。請參閱附錄C內的工作說明，將適用於貴機構的職務的有關資料，填入('B'至'F')各欄內。

(b) Please add in column "A" titles of any technical jobs not mentioned in Appendix C, and briefly describe them and indicate their skill levels.
如貴機構另有技術性職稱未載於附錄C內，請一併填入"A"欄內，並扼要說明其工作性質及技能等級。

(c) Please classify an employee according to his/her main duty irrespective of any additional secondary duties he/she may be required to perform, e.g. a craftsman, who works mainly as a mould and die maker but is also required to perform the work of a tool and die maker occasionally, should be classified as a mould and die maker and not as a tool and die maker.
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，某技工的主要職務爲製模技工，但間中亦須擔任爲工具及五金工模工，則應歸類爲製模技工而非工具及五金工模工。

6. Average Monthly Income - Column "B"
僱員每月平均收入－"B"欄

Please enter into this column the average monthly income range code during the past 12 months for employees under each type of jobs. Monthly income should include basic wages, regular overtime pay, cost of living allowance, meal allowance, year end bonus etc., if any. If you have more than one employee doing the same job, please enter the average figure.
請在"B"欄填入每類工作的僱員過去十二個月，每月平均收入幅度編號；這包括底薪、定期超時工作工資、生活津貼、膳食津貼、年終花紅等。若從事同類工作的僱員多於一名，則請取其平均收入。

7. Number of Employees 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) for each type of jobs in your establishment.
請填寫貴機構現有每類工作的僱員人數（受訓者除外）。

8. Number of Vacancies at Date of Survey (Excluding Trainees) - Column "D"
現有空缺額（受訓者除外）－"D"欄

Please fill in the number of existing vacancies (excluding those for trainees) for each type of jobs in your establishment.
"Existing Vacancies" refer to those unfilled, immediately available job openings for which the establishment is actively trying to recruit personnel at date of survey.
請填入貴機構現有的每類工作的空缺數目（受訓者空缺數目除外）。
「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。

9. Forecast of Number Employed 12 Months from Now (Excluding Trainees) - Column "E"
預計十二個月後僱員人數（受訓者除外）－"E"欄

The forecast of number employed means the likely number of employees (excluding trainees) for each type of jobs you will be employing in your establishment 12 months from now.
預計僱員人數指貴機構十二個月後所僱用每類工作的僱員人數（受訓者除外）。

10. Number of Trainees at Date of Survey - Column "F"
現有受訓者人數－"F"欄

Please fill in the number of employees undergoing training for each type of jobs in your establishment.
請填寫貴機構正在接受訓練的每類工作的僱員人數。

11. Example
例子

To facilitate proper completion, an example is given after this explanatory note for your reference.
爲協助閣下填表，現將例子夾附於本附註後，以供參考。

Part II
第二部份

12. Internal Promotion
內部晉升

An internal promotion is the promotion of an employee to a higher level job by virtue of his/her performance or abilities. In Q1, please fill in the no. of internal promotions from "Technician to Technologist", from "Craftsman to Technician" and from "Others to Craftsman" in the past 12 months in the respective columns.
內部晉升是指僱員因工作表現良好或具所需才能而獲提升至較高職位。請於Q1所屬欄內填寫過去十二個月內，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。

13. Technical Staff Outside Hong Kong
任職香港以外的技術人員

In Q2, please enter the number of technologists, technicians and craftsmen who had worked for more than 6 months outside Hong Kong in the past 12 months.
請在Q2填寫過去十二個月內，在香港以外任職超過六個月的技師、技術員及技工人數。

14. Workers Working in Operations in Guangdong Province under Your Company's Control[#]
由貴公司管理在廣東省機構[#]工作的員工

Q3 Please enter the total number of Mainland workers (excluding Hong Kong residents) working in operations in Guangdong Province which manufacture products for your company and are under your company's control.[#] All Mainland workers involved in engineering, management, clerical and production work in such operations should be included (but workers seconded from Hong Kong should be excluded). Please disregard the name or ownership of such operations.

Q3 請填寫在廣東省機構爲貴公司生產製成品，並由貴公司所管理的內地員工總數(不包括香港人)。內地員工總數包括工程人員、管理人員、文職人員及生產人員（但不包括派往內地工作的香港人）。請毋須理會這些機構的名稱或擁有權。

[#] The meaning of 'Operations in Guangdong Province under Your Company's Control' refers to any operations in Guangdong which satisfy the following conditions:
「由貴公司所管理在廣東省的機構」指屬於下列情況的當地機構：

(1) there are staff in your company posted to the Guangdong operations to manage the activities on a part-time or full-time basis; or/and
貴公司有派僱員長期或短期在該機構工作；或／及

(2) your company/top management of your company is involved in making important management decisions concerning the Guangdong operations.
貴公司或貴公司的管理層有參與該機構的重要管理決策。

Q4 Please enter the total number of Mainland engineers (excluding Hong Kong residents) working in operations in Guangdong Province included in Q3. Mainland managers responsible for technical work should be included as engineers.

Q4 請填寫在廣東省機構工作，包括在Q3內的內地工程師人數(不包括香港人)。負責技術工作的內地經理亦作內地工程師計算。

Q5 Please enter the forecast number of Mainland engineers (excluding Hong Kong residents) likely to be working in the operations in Guangdong Province 12 months from now.
Q5 請填寫預計十二個月後在廣東省機構工作的內地工程師人數(不包括香港人)。

15. Operations Relating to Plastics Industry Set Up in China Other than Guangdong Province
除廣東省外，在中國其他省份成立與塑膠業有關的營運機構

In Q6, please indicate whether your company has set up any other operations relating to plastics industry in China other than the Guangdong Province.
請在Q6表明貴公司除廣東省外，有否在中國其他省份成立任何與塑膠業有關的營運機構。

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

In Q7, please enter in the boxes your view on the education and training which an employee in each of the three job levels (i.e. technologist level, technician level and craftsman level) should have if he/she were to carry out his/her work competently according to the codes on the right column of the questionnaire.
請在Q7格內填寫貴機構的意見：在技師級、技術員級及技工級的僱員宜具備的教育程度及訓練方式，才能勝任其工作。請參閱問卷右欄的類別編號。

EXAMPLE
例子

Part I 第一部份

	(A) Principal Job 主要職務			(B) Average Monthly Income 每月平均收入	(C) No. of Employees at Date of Survey (Excluding Trainees#) 現有僱員人數（受訓者#除外）	(D) No. of Vacancies at Date of Survey (Excluding Trainees#) 現有空缺額（受訓者#除外）	(E) Forecast of No. Employed 12 Months from Now (Excluding Trainees#) 預計十二個月後僱員人數（受訓者#除外）	(F) No. of Trainees# at Date of Survey 現有受訓者#人數
	Job Title 職稱 (Refer to Appendix C) (參考附錄C)	Rec. Type	Job Code 職稱編號 (Refer to Appendix C) (參考附錄C)	Income Code* 收入編號				
			8 - 10	11	12 - 15	16 - 18	19 - 22	23 - 25
1	**Project Engineer**	**2**	**1 0 4**	**6**	**1 2**	**1**	**1 4**	**1**
2	**Manufacturing/Industrial Engineering Technician**	**2**	**2 0 7**	**5**	**8**	**0**	**9**	**0**
3	**Mould and Die Maker**	**2**	**3 0 3**	**3**	**4**	**0**	**4**	**0**
4		2						
5		2						
6		2						
7		2						
8		2						
9		2						
10		2						

* Enter in column (B) the employee's average monthly income range according to the following codes:
請將僱員每月平均收入幅度按照下列類別編號填入 (B) 欄內：

Income Code 收入編號	Average Monthly Income Range 每月平均收入幅度
1	Under $7,501 以下
2	$7,501 - $10,000
3	$10,001 - $15,000
4	$15,001 - $20,000
5	Over $20,000 以上

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 for Principal Jobs in the Plastics Industry
塑 膠 業 主 要 職 務 工 作 說 明

Job Code 職 稱 編 號	Principal Job Title 主 要 職 稱	Job Description 工 作 說 明
TECHNOLOGIST LEVEL 技 師 級		
101	Product Engineer (Plastics) 產 品 工 程 師 （ 塑 膠 業 ）	Originates and directs the design, modification and development of plastics products, harmonising technical, aesthetic and economic features to satisfy client specifications. 擬 訂 及 指 導 塑 膠 產 品 的 設 計 、 修 改 及 發 展 等 工 作 ， 以 符 合 顧 客 在 技 術 、 美 觀 及 經 濟 等 方 面 的 要 求 。
102	Manufacturing/Industrial Engineer 製 造 ／ 工 業 工 程 師	Plans and directs programmes of production including production processes, production planning and control, plant layout and maintenance, assembly tooling design and fabrication, work measurement and utilisation of resources to ensure optimum production efficiency and maintenance of specified quality standards. 策 劃 及 指 導 生 產 計 劃 ， 包 括 生 產 過 程 、 生 產 策 劃 及 管 制 、 廠 房 佈 置 及 維 修 、 裝 配 工 具 設 計 及 製 造 、 工 作 研 究 及 資 源 的 利 用 ， 以 發 揮 最 高 生 產 效 率 及 保 持 品 質 達 到 指 定 的 標 準 。

Job Code 職稱編號	Principal Job Title 主要職稱	Job Description 工作說明
TECHNOLOGIST LEVEL (Continued) 技師級（續）		
103	CAD or CAM Engineer/ Tooling Engineer 電腦輔助設計或電腦輔助生產工程師／工具工模工程師	Plans and uses CAD or CAM facilities to design and manufacture moulds and dies for production of plastics products and related components. Studies, designs, advises and prepares cost estimates on tools, jigs and fixtures, moulds and dies for manufacture of plastics products and related components; plans and supervises their development, manufacture, operation and modifications. 策劃及應用電腦輔助設計或電腦輔助生產設備以設計及製造塑膠工模作生產塑膠產品及其配件之用。研究與設計製造塑膠及附屬產品的工具、夾具及工模，並就此方面提出意見以及編製成本預算，策劃及督導其發展、製造、操作及修改事宜。
104	Project Engineer 策劃及統籌工程師	Plans and co-ordinates the development of plastics products throughout the stages of design, costing, scheduling, tooling, debugging and production. Liaises with customers and coordinates with various departments and suppliers/vendors to ensure the project could meet target requirement. 策劃及統籌塑膠產品的開發工作，工作程序包括由設計至成本會計、生產排期、模具開發、產品試產以至大量生產等。亦包括與客人研商及與各部門及供應商聯絡以確保工作能符合要求。

Job Code 職稱編號	Principal Job Title 主要職稱	Job Description 工作說明
TECHNOLOGIST LEVEL (Continued) 技師級（續）		
105	Costing Engineer 成本工程師	Studies and prepares cost estimates for manufacture of plastics products and related components. Discusses with other engineers and makes recommendations on changes in part design, materials and production methods in order to reduce product cost. Studies actual manufacturing costs and updates cost data. 研究與編製生產塑膠產品及其配件的成本預算。與其他工程師共同研究並在產品設計、應用材料及生產工序方面提供建議以減低產品成本。研究製作成本及爲成本數據提供最新資料。
106	Q.C./Q.A. Engineer 品質管制／品質保證工程師	Conducts design review on new products. Plans, directs and supervises the quality control/quality assurance, including testing and measurement of incoming materials and parts, work-in-progress and finished products to ensure compliance with standards and specifications, and in conformance with safety regulations. 檢討新產品設計。策劃、指導及監督品質管制／品質保證工作，其中包括測試及量度交來物料與配件、半製成品及製成品的品質管制／品質保證工作，使產品能符合標準及規格，並符合安全條例。
107	Electronics/Electrical Engineer 電子／電機工程師	Designs electronic/electrical circuitry and systems for use in plastics products, plans and supervises their development and production; advises on the installation, operation and maintenance of electronic/electrical production equipment. 設計應用在塑膠產品上的電子／電機線路及系統，並策劃及監督這些線路系統的發展及生產工作；以及提出有關安裝、操作及保養電子／電機生產設備的意見。

Job Code 職稱編號	Principal Job Title 主要職稱	Job Description 工作說明
TECHNOLOGIST LEVEL (Continued)　　技師級（續）		
108	Technical Services Engineer 技術支援工程師	Provides expertise and technical services relating to one or more of the following aspects for the production of plastics products : (a) the application of plastics resins and additives; (b) the application of relevant technologies for processing and testing. 爲下列一項或多項塑膠產品生產工作提供專業意見及技術服務： (a) 塑膠原料及添加劑的應用； (b) 應用有關科技加工及測試。
109	Moulding Engineer 啤塑工程師	Performs technical tasks related to the application of moulding technology for the manufacture of plastics parts. Optimises moulding systems and moulding conditions to achieve quality requirements. Identifies technical problems related to moulding and performs trouble-shooting to solve problems on moulding defects. Applies advanced technologies to improve the quality and efficiency on moulding. 應用啤塑科技，製造塑膠零件；善用啤塑系統，以及調校啤塑條件，力求達至高品質水平；找出啤塑方面的技術問題，並解決啤塑上的次品問題；以及應用先進技術，改進啤塑工作的品質與效益。

Job Code 職稱編號	Principal Job Title 主要職稱	Job Description 工作說明
TECHNICIAN LEVEL 技術員級		
201	Supervisor/Foreman 監督／管工	Performs supervisory duties contributory to planning and allocation of tasks to craftsmen and trainees relating to manufacture, inspection, installation, operation, maintenance and repair of plant, tools and equipment or products. 監督、策劃及分配下列工作予技工和受訓者：廠房、工具及設備或產品的製造、檢查、安裝、操作、保養及修理等工作。
202	Mechanical Engineering Technician 機械工程技術員	Performs technical tasks, normally under the direction and supervision of an engineer, contributory to design, development, manufacture, installation, operation, maintenance and repair of mechanical plant equipment and tools. 通常在工程師的指導及監督下擔任技術工作，如從事設計、發展、製造、安裝、操作、保養與修理廠房機械設備及工具。
203	Electronics/Electrical Engineering Technician 電子／電機工程技術員	Performs technical tasks, normally under the direction and supervision of an engineer, contributory to design, development, manufacture, installation, operation, maintenance and repair of electronic devices/electrical systems in plastics products and/or plant equipment. 通常在工程師的指導及監督下擔任技術工作，如從事設計、發展、製造、安裝、操作、保養與修理塑膠產品及／或廠房設備的電子裝置／電氣系統。

Job Code 職稱編號	Principal Job Title 主要職稱	Job Description 工作說明
TECHNICIAN LEVEL (Continued)		技術員級（續）
204	Q.C./Q.A. Technician 品質管制／品質保證技術員	Performs technical tasks, normally under the direction and supervision of a quality control/ quality assurance engineer, contributory to quality control/quality assurance of incoming materials and parts, work-in-progress, and finished products to ensure compliance with standards and specifications, and in conformance with safety regulations. 通常在品質管制／品質保證工程師的督導下擔任技術工作，如參與來料與配件、半製成品及製成品的品質管制／品質保證工作，使產品能符合標準及規格，並符合安全條例。
205	Product/Packaging Development Technician 產品／包裝發展技術員	Assists in design and development of plastics products and/or packaging, harmonising technical, aesthetic and economic features including preparation of product and package drawings and materials specifications. 協助從事塑膠產品及／或包裝的設計及發展，使能符合技術、美觀及經濟等方面的要求，包括編製產品、包裝圖樣及塑料規格。
206	Laboratory/Materials Technician 實驗室／塑料技術員	Formulates and assists in preparation of plastics materials; assesses quality by laboratory analyses and tests of plastics and related samples in accordance with specifications. 制定及協助製備塑料，按照規格於實驗室內分析及測試塑膠及有關樣本，以評估品質。
207	Manufacturing/Industrial Engineering Technician 製造／工業工程技術員	Performs technical tasks, normally under the supervision of a manufacturing/industrial engineer, contributory to the production processes, production planning and control, plant layouts and assurance of quality standards. 通常在製造／工業工程師指導下擔任技術工作，如生產工序、生產策劃及管制、廠房佈置及品質標準保證等。

Job Code 職稱編號	Principal Job Title 主要職稱	Job Description 工作說明
TECHNICIAN LEVEL (Continued)		技術員級（續）
208	Tooling Technician 工具工模技術員	Performs technical tasks, normally under the direction and supervision of a tooling engineer, contributory to the design, development, manufacture and operation of jigs and fixtures, press tools, and moulds and dies for manufacture of plastics products and related components. 通常在工具工模工程師指導下擔任技術工作，如從事設計、發展、製造及操作夾具及裝置、五金工模及塑膠工模作生產塑膠產品及其配件之用。
209	CAD or CAM Technician (Tooling) 電腦輔助設計或電腦輔助生產技術員(工模)	Performs technical tasks, normally under the direction and supervision of a CAD or CAM Engineer/Tooling Engineer, contributory to the design and manufacture of moulds and dies for production of plastics products and related components using CAD/CAM facilities. 通常在電腦輔助設計或電腦輔助生產工程師／工具工模工程師的督導下擔任技術工作，應用電腦輔助設計／電腦輔助生產設備以設計及製造塑膠工模作生產塑膠產品及其配件之用。
210	Production Planner 生產策劃員	Formulates planning work based on capacity and devises and monitors production schedules to meet delivery targets. Performs planning and monitors the progress of supplied materials/parts to cope with production schedules. Negotiates with suppliers/vendors on delivery, price and quality of supplied materials/parts. 根據資源制訂生產計劃；釐定及監察生產進度，確保產品能於交貨期內完成；策劃及監察物料或零件的供應，以配合生產進度；就物料或零件的交貨期、價格及品質事宜，與供應商聯絡。

Job Code 職稱編號	Principal Job Title 主要職稱	Job Description 工作說明
CRAFTSMAN LEVEL 技工級		
301	Leader 組長	Organises, trains and takes charge of a group or groups of operatives in a section. 組織、訓練及監督部門內一組或多組操作工的工作。
302	Electrician 電器技工	Installs, tests, services and repairs electrical systems/electronic devices of machinery and equipment; undertakes maintenance of plant electrical wiring systems. 安裝、測試、保養及修理機器與廠房設備的電氣系統／電子裝置；負責維修廠房的電線系統。
303	Mould and Die Maker 製模技工	Marks out, machines, fits, assembles and finishes metal parts to make, test, and repair plastics moulds and dies according to drawings and other specifications. 按照圖則及其他規格，劃線、車削、打磨、裝配及處理金屬配件，以製造、測試及修理塑膠模。
304	Tool and Die Maker 工具及五金工模工	Marks out, machines, fits and assembles parts to make and repair press tools, jigs and fixtures, gauges and special tools according to drawings and other specifications. 依照圖則及其他規格，劃線、車削、打磨及裝配配件，以製造及修理動力沖壓模、夾具、量規及特別工具。
305	Pattern/Model/ Prototype Maker 樣本／模型／生產原型製造工	Sets up and operates metal working and other processing machines to cut, shape and fit parts to fabricate or modify models, patterns and/or prototypes of plastics products from drawings and other specifications. 依照圖則及其他規格，調校及操作金屬製造及其他加工機床以切割、鉋削及打磨配件，以便構造或修改塑膠產品的模型、樣本及／或生產原型。

Job Code 職稱編號	Principal Job Title 主要職稱	Job Description 工作說明
CRAFTSMAN LEVEL (Continued) 技工級（續）		
306	Plastics Machine Setter 校機技工	Sets up various plastics processing machines such as injection moulding machines, blow moulding machines, film blowing machines, etc., to produce parts to specified tolerances, colour and finish. 調校各種塑膠加工機，例如壓注模塑（啤）機，吹氣模塑機，吹膜機等，使加工機能生產符合規定公差、顏色及光潔度的配件。
307	Tailor (Plastics/Fabric) 裁剪技工 (塑膠／布料)	Makes master patterns, plans lay, and cuts cloth, plastics or other materials to facilitate sewing operations. 製造原樣紙樣，設計排料圖，剪裁布料、塑膠料或其他物料，以供縫紉之用。
308	Quality Control Inspector 品質檢查工	Inspects plastics products and related components according to specified instructions to ensure compliance with quality requirement. 依照指示檢查塑膠產品及其配件以保證符合品質要求。
OPERATIVE LEVEL 操作工級		
401	Blow Moulding Machine Operator 吹氣模塑機工	Operates a blow moulding machine. 操作吹氣模塑機。
402	Film Blowing Machine Operator 吹膜機工	Operates a film blowing machine. 操作塑膠吹膜機。
403	Injection Moulding Machine Operator 壓注模塑機工	Operates a plastics injection moulding machine. 操作壓注模塑機。
404	Vacuum Forming Machine Operator 真空吸塑機工	Operates a vacuum forming machine. 操作真空吸塑機。

Job Code 職稱編號	Principal Job Title 主要職稱	Job Description 工作說明
OPERATIVE LEVEL　操作工級（續）		
405	Other Plastics Processing Machine Operator 其他塑膠加工機操作工	Operates one or more of the following plastics processing machines: extrusion, calendering, compression moulding, laminating, preheating and drying, tumbling, granulating machine etc., or makes Glass Reinforced Plastics (GRP) parts and products by hand lay-up or spraying method. 操作下列一種或多種塑膠加工機器，例如壓擠機，軋光機，壓縮模塑機，積層壓製機，預熱及烘乾機，混色機及製粒（碎料）機等；或運用手工敷層或噴塗法製造玻璃纖維配件及成品。
406	Power Press Operator 動力沖壓機操作工	Operates a power press to produce sheet metal component parts. 操作動力沖壓機，壓製金屬薄片配件。
407	Printing Operator 印刷工	Prints plastics and related products by operating printing machines such as pad printer, grauvre printer, screen printing machines etc. 操作膠墊移印機、凹版機、絲網印刷機等機器，以印刷塑膠及有關產品。
408	Assembler 裝配工	Performs tasks in the assembly of plastics products. 從事塑膠產品的裝配工作。
409	Seamstress/Sewing Machine Operator 縫工	Sews articles of various fabrics by hand or machines. 用手或衣車縫製各類纖維物品。
GENERAL WORKER (UNSKILLED) LEVEL　雜工（非技工）級		
501	General Worker 雜工	Carries out mainly manual work such as loading and unloading goods, sprue removal, stamping, packing etc. 主要擔任粗重工作或雜務，如上落貨物、剪水口、打印及包裝等。

TABLE 1 : PLASTICS INDUSTRY MANPOWER STATISTICS (ALL SECTORS)
表一：塑膠業人力統計數字（所有類別）

Job Title 職　稱	Number of Employees Employed 現有僱員人數	Number of Trainees 現有受訓者人數	Number of Vacancies at Date of Survey 現有的空缺額	Forecast of Number Employed by September 2012 預計在二〇一二年九月時的僱員總數
TECHNOLOGIST LEVEL　技師級				
Product Engineer (Plastics) 產品工程師（塑膠業）	627	-	2	629
Manufacturing/Industrial Engineer 製造／工業工程師	516	-	-	516
CAD or CAM Engineer/ Tooling Engineer 電腦輔助設計或電腦輔助生產工程師／工具工模工程師	209	-	2	211
Project Engineer 策劃及統籌工程師	1 488	1	20	1 508
Costing Engineer 成本工程師	166	-	4	170
Q.C./Q.A. Engineer 品質管制／品質保證工程師	439	2	10	449
Electronics/Electrical Engineer 電子／電機工程師	203	-	1	204
Technical Services Engineer 技術支援工程師	404	-	5	409
Moulding Engineer 啤塑工程師	45	-	-	45
Sub-total 分類總數	4 097	3	44	4 141
TECHNICIAN LEVEL　技術員級				
Supervisor/Foreman 監督／管工	199	-	-	199
Mechanical Engineering Technician 機械工程技術員	62	-	1	63
Electronics/Electrical Engineering Technician 電子／電機工程技術員	66	-	-	66
Q.C./Q.A. Technician 品質管制／品質保證技術員	702	-	6	708

Job Title 職　稱	Number of Employees Employed 現有僱員人數	Number of Trainees 現有受訓者人數	Number of Vacancies at Date of Survey 現有的空缺額	Forecast of Number Employed by September 2012 預計在二〇一二年九月時的僱員總數
TECHNICIAN LEVEL (Continued)　技術員級（續）				
Product/Packaging Development Technician 產品／包裝發展技術員	630	-	20	650
Laboratory/Materials Technician 實驗室／塑料技術員	240	-	16	256
Manufacturing/Industrial Engineering Technician 製造／工業工程技術員	189	-	-	189
Tooling Technician 工具工模技術員	58	-	1	59
CAD or CAM Technician (Tooling) 電腦輔助設計或電腦輔助生產技術員（工模）	206	-	7	213
Production Planner 生產策劃員	1 300	-	8	1 305
Sub-total 分類總數	3 652	-	59	3 708
CRAFTSMAN LEVEL　技工級				
Leader 組長	78	-	-	78
Electrician 電器技工	16	-	1	17
Mould and Die Maker 製模技工	57	1	2	59
Tool and Die Maker 工具及五金工模工	8	-	-	8
Pattern/Model/Prototype Maker 樣本／模型／生產原型製造工	25	-	-	25
Plastics Machine Setter 校機技工	31	-	3	34
Tailor (Plastics/Fabric) 裁剪技工（塑膠／布料）	32	-	-	27
Quality Control Inspector 品質檢查工	139	-	1	140
Sub-total 分類總數	386	1	7	388

Job Title 職　稱	Number of Employees Employed 現有僱員人數	Number of Trainees 現有受訓者人數	Number of Vacancies at Date of Survey 現有的空缺額	Forecast of Number Employed by September 2012 預計在二〇一二年九月時的僱員總數
OPERATIVE LEVEL　操作工級				
Blow Moulding Machine Operator 吹氣模塑機工	31	-	-	31
Film Blowing Machine Operator 吹膜機工	112	1	1	112
Injection Moulding Machine Operator 壓注模塑機工	181	-	4	179
Vacuum Forming Machine Operator 真空吸塑機工	6	-	-	6
Other Plastics Processing Machine Operator 其他塑膠加工機操作工	264	-	6	270
Power Press Operator 動力沖壓機操作工	2	-	-	2
Printing Operator 印刷工	114	1	7	118
Assembler 裝配工	167	-	3	169
Seamstress/Sewing Machine Operator 縫工	30	-	-	30
Sub-total 分類總數	907	2	21	917
UNSKILLED LEVEL　非技工級				
General Worker 雜工	803	-	20	819
Sub-total 分類總數	803	-	20	819
GRAND TOTAL 五類總數	9 845	6	151	9 973

TABLE 2 : PLASTICS INDUSTRY MANPOWER STATISTICS
(SECTOR A : PLASTICS MANUFACTURING & TRADING)
表二：塑膠業人力統計數字（塑膠製造及貿易類別）

Job Title 職　稱	Number of Employees Employed 現有僱員人數	Number of Trainees 現有受訓者人數	Number of Vacancies at Date of Survey 現有的空缺額	Forecast of Number Employed by 2012 預計在二〇一二年九月時的僱員總數
TECHNOLOGIST LEVEL　技師級				
Product Engineer (Plastics) 產品工程師（塑膠業）	587	-	1	588
Manufacturing/Industrial Engineer 製造／工業工程師	474	-	-	474
CAD or CAM Engineer/ Tooling Engineer 電腦輔助設計或電腦輔助生產工程師／工具工模工程師	185	-	2	187
Project Engineer 策劃及統籌工程師	1 410	1	18	1 428
Costing Engineer 成本工程師	166	-	4	170
Q.C./Q.A. Engineer 品質管制／品質保證工程師	374	2	1	375
Electronics/Electrical Engineer 電子／電機工程師	197	-	1	198
Technical Services Engineer 技術支援工程師	27	-	-	27
Moulding Engineer 啤塑工程師	42	-	-	42
Sub-total 分類總數	3 462	3	27	3 489
TECHNICIAN LEVEL　技術員級				
Supervisor/Foreman 監督／管工	190	-	-	190
Mechanical Engineering Technician 機械工程技術員	58	-	1	59
Electronics/Electrical Engineering Technician 電子／電機工程技術員	59	-	-	59

Job Title 職　稱	Number of Employees Employed 現有僱員人數	Number of Trainees 現有受訓者人數	Number of Vacancies at Date of Survey 現有的空缺額	Forecast of Number Employed by 2012 預計在二〇一二年九月時的僱員總數
Q.C./Q.A. Technician 品質管制／品質保證技術員	629	-	1	630
TECHNICIAN LEVEL (Continued)　技術員級（續）				
Product/Packaging Development Technician 產品／包裝發展技術員	603	-	20	623
Laboratory/Materials Technician 實驗室／塑料技術員	8	-	-	8
Manufacturing/Industrial Engineering Technician 製造／工業工程技術員	175	-	-	175
Tooling Technician 工具工模技術員	55	-	1	56
CAD or CAM Technician (Tooling) 電腦輔助設計或電腦輔助生產技術員（工模）	190	-	6	196
Production Planner 生產策劃員	1 269	-	8	1 274
Sub-total 分類總數	3 236	-	37	3 270
CRAFTSMAN LEVEL　技工級				
Leader 組長	62	-	-	62
Electrician 電氣技工	13	-	1	14
Mould and Die Maker 製模技工	49	1	2	51
Tool and Die Maker 工具及五金工模工	5	-	-	5
Pattern/Model/Prototype Maker 樣本／模型／生產原型製造工	23	-	-	23
Plastics Machine Setter 校機技工	24	-	2	26
Tailor (Plastics/Fabric) 裁剪技工（塑膠／布料）	32	-	-	27
Quality Control Inspector 品質檢查工	75	-	1	76
Sub-total 分類總數	283	1	6	284

Job Title 職　稱	Number of Employees Employed 現有僱員人數	Number of Trainees 現有受訓者人數	Number of Vacancies at Date of Survey 現有的空缺額	Forecast of Number Employed by 2012 預計在二〇一二年九月時的僱員總數
OPERATIVE LEVEL　操作工級				
Blow Moulding Machine Operator 吹氣模塑機工	31	-	-	31
Film Blowing Machine Operator 吹膜機工	112	1	1	112
Injection Moulding Machine Operator 壓注模塑機工	179	-	4	177
Vacuum Forming Machine Operator 真空吸塑機工	6	-	-	6
Other Plastics Processing Machine Operator 其他塑膠加工機操作工	214	-	1	215
Power Press Operator 動力沖壓機樑作工	2	-	-	2
Printing Operator 印刷工	114	1	7	118
Assembler 裝配工	167	-	3	169
Seamstress/Sewing Machine Operator 縫工	30	-	-	30
Sub-total 分類總數	855	2	16	860
UNSKILLED LEVEL　非技工級				
General Worker 雜工	756	-	20	772
Sub-total 分類總數	756	-	20	772
GRAND TOTAL 五類總數	8 592	6	106	8 675

TABLE 3 : PLASTICS INDUSTRY MANPOWER STATISTICS
(SECTOR B : PLASTICS MANUFACTURING SERVICES)
表三：塑膠業人力統計數字（塑膠製造服務類別）

Job Title 職　稱	Number of Employees Employed 現有僱員人數	Number of Trainees 現有受訓者人數	Number of Vacancies at Date of Survey 現有的空缺額	Forecast of Number Employed by September 2012 預計在二〇一二年九月時的僱員總數
TECHNOLOGIST LEVEL　技師級				
Product Engineer (Plastics) 產品工程師（塑膠業）	40	-	1	41
Manufacturing/Industrial Engineer 製造／工業工程師	42	-	-	42
CAD or CAM Engineer/ Tooling Engineer 電腦輔助設計或電腦輔助生產工程師／工具工模工程師	24	-	-	24
Project Engineer 策劃及統籌工程師	78	-	2	80
Costing Engineer 成本工程師	-	-	-	-
Q.C./Q.A. Engineer 品質管制／品質保證工程師	65	-	9	74
Electronics/Electrical Engineer 電子／電機工程師	6	-	-	6
Technical Services Engineer 技術支援工程師	377	-	5	382
Moulding Engineer 啤塑工程師	3	-	-	3
Sub-total 分類總數	635	-	17	652
TECHNICIAN LEVEL　技術員級				
Supervisor/Foreman 監督／管工	9	-	-	9
Mechanical Engineering Technician 機械工程技術員	4	-	-	4
Electronics/Electrical Engineering Technician 電子／電機工程技術員	7	-	-	7

Job Title 職　稱	Number of Employees Employed 現有僱員人數	Number of Trainees 現有受訓者人數	Number of Vacancies at Date of Survey 現有的空缺額	Forecast of Number Employed by September 2012 預計在二〇一二年九月時的僱員總數
Q.C./Q.A. Technician 品質管制／品質保證技術員	73	-	5	78
TECHNICIAN LEVEL (Continued)　技術員級（續）				
Product/Packaging Development Technician 產品／包裝發展技術員	27	-	-	27
Laboratory/Materials Technician 實驗室／塑料技術員	232	-	16	248
Manufacturing/Industrial Engineering Technician 製造／工業工程技術員	14	-	-	14
Tooling Technician 工具工模技術員	3	-	-	3
CAD or CAM Technician (Tooling) 電腦輔助設計或電腦輔助生產技術員（工模）	16	-	1	17
Production Planner 生產策劃員	31	-	-	31
Sub-total 分類總數	416	-	22	438
CRAFTSMAN LEVEL　技工級				
Leader 組長	16	-	-	16
Electrician 電氣技工	3	-	-	3
Mould and Die Maker 製模技工	8	-	-	8
Tool and Die Maker 工具及五金工模工	3	-	-	3
Pattern/Model/Prototype Maker 樣本／模型／生產原型製造工	2	-	-	2
Plastics Machine Setter 校機技工	7	-	1	8
Tailor (Plastics/Fabric) 裁剪技工（塑膠／布料）	-	-	-	-
Quality Control Inspector 品質檢查工	64	-	-	64
Sub-total 分類總數	103	-	1	104

Job Title 職　稱	Number of Employees Employed 現有僱員人數	Number of Trainees 現有受訓者人數	Number of Vacancies at Date of Survey 現有的空缺額	Forecast of Number Employed by September 2012 預計在二〇一二年九月時的僱員總數
OPERATIVE LEVEL　操作工級				
Blow Moulding Machine Operator 吹氣模塑機工	-	-	-	-
Film Blowing Machine Operator 吹膜機工	-	-	-	-
Injection Moulding Machine Operator 壓注模塑機工	2	-	-	2
Vacuum Forming Machine Operator 真空吸塑機工	-	-	-	-
Other Plastics Processing Machine Operator 其他塑膠加工機操作工	50	-	5	55
Power Press Operator 動力沖壓機樑作工	-	-	-	-
Printing Operator 印刷工	-	-	-	-
Assembler 裝配工	-	-	-	-
Seamstress/Sewing Machine Operator 縫工	-	-	-	-
Sub-total 分類總數	52	-	5	57
UNSKILLED LEVEL　非技工級				
General Worker 雜工	47	-	-	47
Sub-total 分類總數	47	-	-	47
GRAND TOTAL 五類總數	1 253	-	45	1 298

TABLE 4: DISTRIBUTION OF EMPLOYEES BY MONTHLY INCOME RANGE
表四：根據每月平均收入幅度劃分的僱員分布情況

Job Title 職稱	Under $7,501 $7,501 以下	$7,501 - $10,000	$10,001 - $15,000	$15,001 - $20,000	Over $20,000 $20,000 以上	Unspecified 未列明
TECHNOLOGIST LEVEL 技師級						
Product Engineer (Plastics) 產品工程師（塑膠業）	8	-	16	89	472	42
Manufacturing/Industrial Engineer 製造／工業工程師	-	-	18	160	290	48
CAD or CAM Engineer/Tooling Engineer 電腦輔助設計或電腦輔助生產工程師／工具工模工程師	-	-	14	50	124	21
Project Engineer 策劃及統籌工程師	15	15	78	429	728	223
Costing Engineer 成本工程師	-	-	13	56	88	9
Q.C./Q.A. Engineer 品質管制／品質保證工程師	-	-	59	144	167	69
Electronics/Electrical Engineer 電子／電機工程師	-	-	-	53	144	6
Technical Services Engineer 技術支援工程師	-	3	11	245	43	102
Moulding Engineer 啤塑工程師	-	-	-	18	22	5
Sub-total 分類總數	23	18	209	1 244	2 078	525

Job Title 職稱	Under $7,501 以下	$7,501 - $10,000	$10,001 - $15,000	$15,001 - $20,000	Over $20,000 以上	Unspecified 未列明
TECHNICIAN LEVEL　技術員級						
Supervisor/Foreman 監督／管工	4	5	51	57	66	16
Mechanical Engineering Technician 機械工程技術員	-	1	27	22	8	4
Electronics/Electrical Engineering Technician 電子／電機工程技術員	-	1	37	16	9	3
Q.C./Q.A. Technician 品質管制／品質保證技術員	-	8	180	363	27	124
Product/Packaging Development Technician 產品／包裝發展技術員	-	1	184	309	69	67
Laboratory/Materials Technician 實驗室／塑料技術員	-	1	231	3	5	-
Manufacturing/Industrial Engineering Technician 製造／工業工程技術員	-	1	109	44	15	20
Tooling Technician 工具工模技術員	-	-	32	22	-	4
CAD or CAM Technician (Tooling) 電腦輔助設計或電腦輔助生產技術員（工模）	-	-	127	41	5	33
Production Planner 生產策劃員	15	41	516	488	58	182
Sub-total 分類總數	19	59	1 494	1 365	262	453

Job Title 職稱	Under $7,501 以下	$7,501 - $10,000	$10,001 - $15,000	$15,001 - $20,000	Over $20,000 以上	Unspecified 未列明
CRAFTSMAN LEVEL　技工級						
Leader 組長	-	9	52	12	4	1
Electrician 電氣技工	-	1	14	-	1	-
Mould and Die Maker 製模技工	-	28	14	9	6	-
Tool and Die Maker 工具及五金工模工	2	-	5	-	-	1
Pattern/Model/Prototype Maker 樣本／模型／生產原型製造工	1	16	8	-	-	-
Plastics Machine Setter 校機技工	-	11	19	-	-	1
Tailor (Plastics/Fabric) 裁剪技工（塑膠／布料）	12	15	5	-	-	-
Quality Control Inspector 品質檢查工	60	26	28	20	-	5
Sub-total 分類總數	75	106	145	41	11	8
OPERATIVE LEVEL　操作工級						
Blow Moulding Machine Operator 吹氣模塑機工	10	13	8	-	-	-
Film Blowing Machine Operator 吹模機工	21	67	17	-	-	7
Injection Moulding Machine Operator 壓注模塑機工	9	122	46	-	-	4

Job Title 職稱	Under $7,501 以下	$7,501 - $10,000	$10,001 - $15,000	$15,001 - $20,000	Over $20,000 以上	Unspecified 未列明
OPERATIVE LEVEL (Continued)　操作工級（續）						
Vacuum Forming Machine Operator 真空吸塑機工	1	5	-	-	-	-
Other Plastics Processing Machine Operator 其他塑膠加工機操作工	11	182	68	-	-	3
Power Press Operator 動力沖壓機操作工	1	-	1	-	-	-
Printing Operator 印刷工	3	97	12	2	-	-
Assembler 裝配工	86	54	-	-	-	27
Seamstress/Sewing Machine Operator 縫工	-	30	-	-	-	-
Sub-total 分類總數	142	570	152	2	-	41
UNSKILLED LEVEL　非技工級						
General Worker 雜工	209	519	44	-	-	31
Sub-total 分類總數	209	519	44	-	-	31

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

Job Title 職　稱	Number of Employees at Time of Survey (2011) 調查期間（二〇一一年）僱員人數	Recommended Number of Persons to be Taken on Annually from 2012 由二〇一二起每年應取錄的受訓者人數
TECHNOLOGIST LEVEL　技師級		
Product Engineer (Plastics) 產品工程師（塑膠業）	627	27 – 32
Manufacturing/Industrial Engineer 製造／工業工程師	516	22 – 27
CAD-CAM Engineer/ Tooling Engineer 電腦輔助設計 － 電腦輔助生產工程師／工具工模工程師	209	9 – 11
Project Engineer 策劃及統籌工程師	1 488	63 – 77
Costing Engineer 成本工程師	166	7 – 9
Q.C./Q.A. Engineer 品質管制／品質保證工程師	439	19 – 23
Electronics/Electrical Engineer 電子／電機工程師	203	9 – 11
Technical Services Engineer 技術支援工程師	404	17 – 21
Moulding Engineer 啤塑工程師	45	2 – 3
Sub-total 分類總數	4 097	175 – 214
TECHNICIAN LEVEL　技術員級		
Supervisor/Foreman 監督／管工	199	8 – 10
Mechanical Engineering Technician 機械工程技術員	62	3
Electronics/Electrical Engineering Technician 電子／電機工程技術員	66	3

Job Title 職　稱	Number of Employees at Time of Survey (2011) 調查期間（二〇一一年）僱員人數	Recommended Number of Persons to be Taken on Annually from 2012 由二〇一二起每年應取錄的受訓者人數
TECHNICIAN LEVEL (Continued)　技術員級（續）		
Q.C./Q.A. Technician 品質管制／品質保證技術員	702	29 – 36
Product/Packaging Development Technician 產品／包裝進展技術員	630	26 – 32
Laboratory/Materials Technician 實驗室／塑料技術員	240	10 – 12
Manufacturing/Industrial Engineering Technician 製造／工業工程技術員	189	8 – 10
Tooling Technician 工具工模技術員	58	2 – 3
CAD-CAM Technician (Tooling) 電腦輔助設計 － 電腦輔助生產技術員（工模）	206	9 – 11
Production Planner 生產策劃員	1 300	55 – 67
Sub-total 分類總數	3 652	153 – 187
CRAFTSMAN LEVEL　技工級		
Leader 組長	78	2 – 3
Electrician 電氣技工	16	0
Mould and Die Maker 製模技工	57	1 – 2
Tool and Die Maker 工具及五金工模工	8	0
Pattern/Model/Prototype Maker 樣本／模型／生產原型製造工	25	1
Plastics Machine Setter 校機技工	31	1 – 2
Tailor (Plastics/Fabric) 裁剪技工（塑膠／布料）	32	1 – 2
Quality Control Inspector 品質檢查工	139	4 – 5
Sub-total 分類總數	386	10 – 15

NUMBER OF EMPLOYEES IN OTHER INDUSTRIES RELATED TO THE PLASTICS FIELD AND RECOMMENDED NUMBER OF TRAINEES TO BE TRAINED FOR THE NEXT FEW YEARS

與塑膠業有關並在其他行業工作的僱員人數及建議未來幾年應取錄的受訓者人數

Industry 行業 (Source of Information) 資料來源	Job Title 職稱	Number of Employees at Time of Survey 調查期間僱員人數	Recommended Number of Trainees to be Taken on Annually 建議每年應取錄的受訓者人數
Metals Industry 金屬業 (From the 2010 Manpower Survey of the Metals Industry) (根據 2010 年金屬業人力調查報告)	Manufacturing/ Production/ Industrial Engineer 製造／生產／工業工程師	257	10 – 12
	Manufacturing/Production/ Industrial Engineering Technician 製造／生產／工業工程技術員	282	4 – 5
	Mould Maker 製模技工	191	8 – 9
	Pattern/Model/ Prototype Maker 樣本／模型／生產原型製造工	31	1 – 2
Electronics Industry 電子業 (From the 2010 Manpower Survey of the Electronics Industry) (根據 2010 年電子業人力調查報告)	Manufacturing/Quality Assurance Engineer 製造／品質保證工程師	802	45 – 55
	Manufacturing/Quality Assurance Technician 製造／品質保證技術員	681	28 – 34
	Mechanic 技工	520	30 – 37