

Manufacturing Technology Training Board
製造科技業訓練委員會



Manufacturing Technology Industry
Manpower Survey Report
製造科技業・人力調查報告書

2018



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**2018 Manpower Survey
Manufacturing Technology Industry**

**Manufacturing Technology Training Board
Vocational Training Council**

製造科技業
2018 年人力調查報告

職業訓練局
製造科技業訓練委員會

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鳴謝

是次製造科技業訓練委員會〔本會〕之人力調查，得到業界機構合作填覆問卷、政府統計處協助抽樣設計及米奧特資料搜集中心協助蒐集數據，本會特此鳴謝。

本會亦感謝大學教育資助委員會、職業訓練局〔VTC〕屬下香港專業教育學院和青年學院，提供課程和畢業生統計資料，特此致意。

EXECUTIVE SUMMARY

I. EXECUTIVE SUMMARY

Background

1.1 The key objective of the Manpower Survey (MPS) of the Manufacturing Technology Industry is to collect up-to-date manpower information with a view to assessing the manpower requirements and training needs of the manufacturing technology industry.

1.2 The report presents the findings of the MPS of the Manufacturing Technology Industry conducted from July to September 2018.

Survey Coverage

1.3 The Survey covered the following sectors and branches of the manufacturing technology industry:

A. Manufacturing Sector

Metals

Branch 1: Plant maintenance section of food, beverage and tobacco manufacturing industries

Branch 2: Manufacture of basic metals

Branch 3: Manufacture of fabricated metal products (except machinery and equipment) and metal toys

Branch 4: Manufacture of machinery and equipment

Branch 5: Manufacture of medical equipment

Branch 6: Manufacture of electrical equipment

Branch 7: Repair and installation of machinery and equipment

Plastics

Branch 11: Manufacture of plastic toys

Branch 12: Manufacture of plastic domestic utensils

Branch 13: Manufacture of plastic cases and parts

Branch 14: Manufacture of plastic bags (except handbags)

Branch 15: Manufacture of plastic products not elsewhere classified

B. Trading Sector

Metals Trading

Branch 8: Wholesale, import and export of machinery and equipment

Plastics Trading

Branch 16: Import and export of toys

Branch 17: Import and export of plastic products

C. Manufacturing Services Sector

Branch 9: Engineering services related to metals industry including material testing, metallurgist, process development/testing, production line consulting/design and quality control

Branch 10: Relevant division/department in training/education institutions

Branch 18: Major plastic resin suppliers and design firms of plastics products

Survey Methodology

1.4 A total of 1 522 establishments was selected for the survey, with 1 332 establishments selected basing on the stratified random sampling method and 190 establishments selected as supplementary samples.

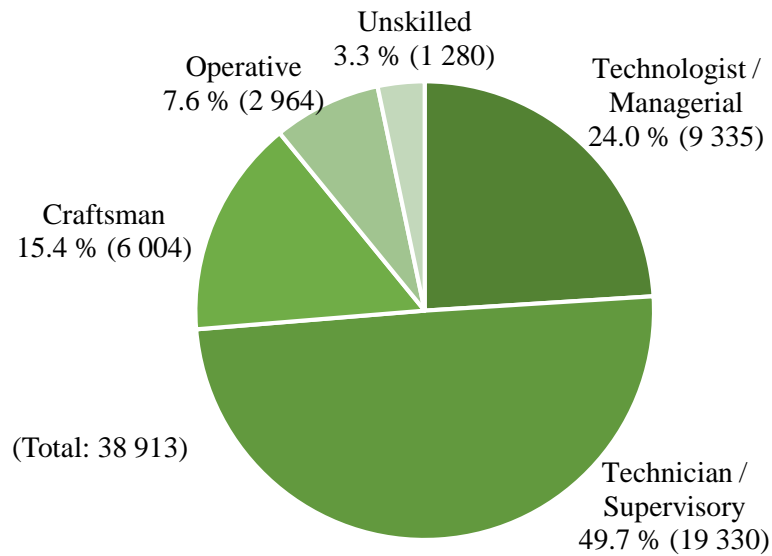
1.5 To ensure a smooth survey implementation and accuracy of survey findings, stringent quality assurance measures were applied at various stages of the survey, including thorough training of fieldwork staff, 100% vetting of questionnaires by a dedicated team of VTC, validation of collected data through computer programming, and so on.

Summary of Survey Findings

A. Number of Employees

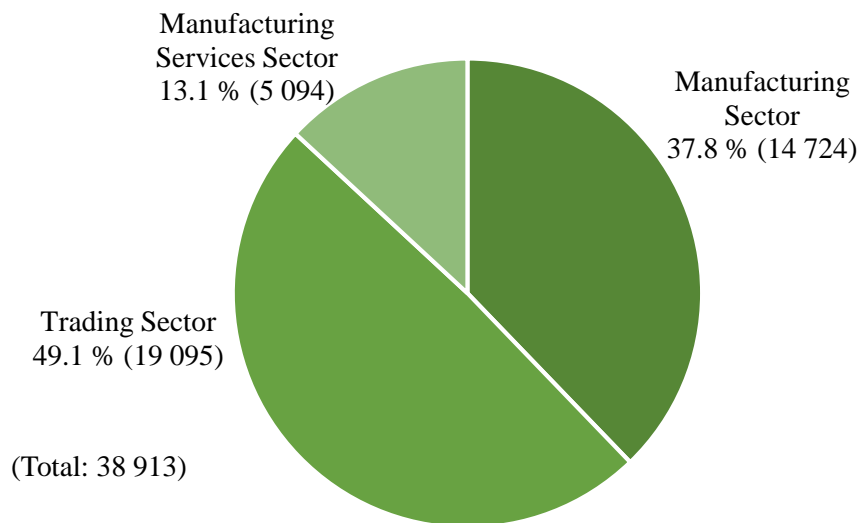
1.6 At the time of survey, a total of 38 913 persons were employed in the principal jobs of the manufacturing technology industry. Of them, 9 335 (24.0%) were at technologist/managerial level, 19 330 (49.7%) at technician/supervisory level, 6 004 (15.4%) at craftsman level, 2 964 (7.6%) at operative level and 1 280 (3.3%) at unskilled level.

Figure 1.1 Number of Employees by Job Level



1.7 About half (49.1%) of manpower were engaged in trading sector, followed by 37.8% in manufacturing sector and 13.1% in manufacturing services sector.

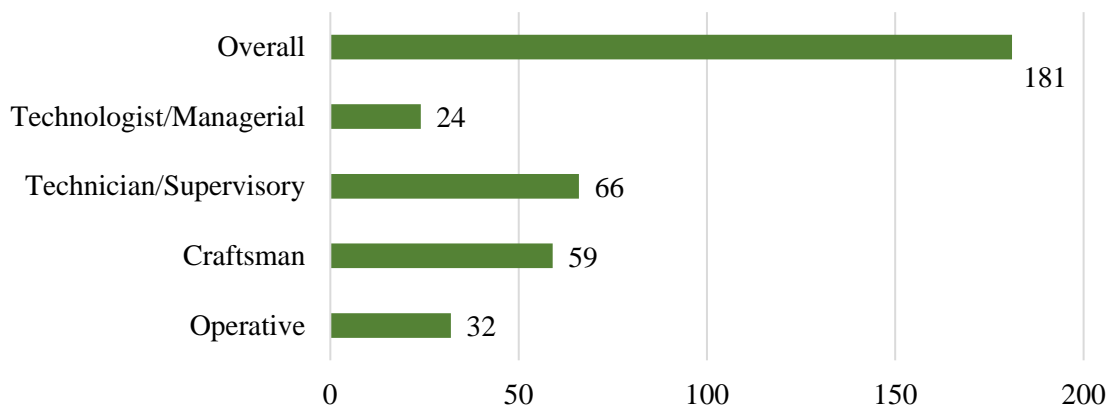
Figure 1.2 Number of Employees by Sector



B. Number of Trainees

1.8 At the time of survey, a total of 181 trainees were reported, which accounted for less than 1% of the total of employees and trainees (39 094) of manufacturing technology industry. Of these 181 trainees, 24 were at technologist/managerial level, 66 at technician/supervisory level, 59 at craftsman level and 32 at operative level.

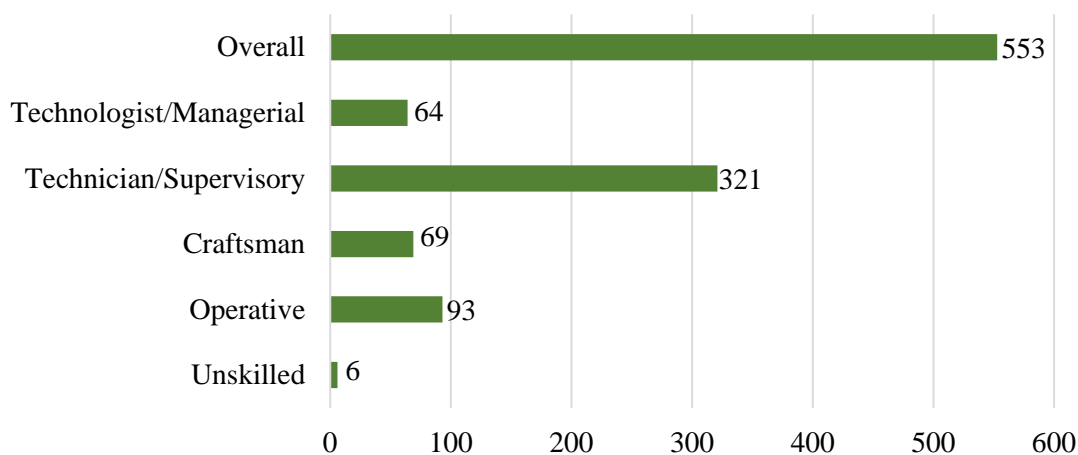
Figure 1.3 Number of Trainees by Job Level



C. Number of Vacancies

1.9 At the time of survey, the total number of job vacancies was 553, representing a vacancy rate of 1.4% of the total of employees and vacancies (39 466) of manufacturing technology industry. Of these 553 job vacancies, 321 were at technician/supervisory level, 93 at operative level, 69 at craftsman level, 64 at technologist/managerial level and 6 at unskilled level. The vacancy rate ranged from 0.5% to 3.0% for various levels.

Figure 1.4 Number of Vacancies by Job Level



D. Manpower Demand

1.10 Looking at the manufacturing technology industry as a whole, the manpower requirement expected from employers after a year was more or less the same (from 39 466 employees in 2018 to 39 462 in 2019). In other words, employers expected the vacancies would be filled up in 2019.

Table 1.1 Employers' Forecast of Manpower Demand in 2019

No. of Employees	No. of Vacancies	No. of Posts (Employees and Vacancies)	Forecasted No. of Employees as of July 2019	Forecasted No. of Increase / Decrease in Manpower as of July 2019 against 2018
38 913	553	39 466	39 462	-4 (-0.01%)

E. Manpower Projection for 2019-2022

1.11 Taking into account of data collected in the present and past manpower surveys, estimated manpower wastage rates, employers' views on the expected change in business situation, and other considerations affecting the industry, the Training Board forecasts the annual additional manpower demand between 2019 and 2022 by adopting the Adaptive Filtering Method as follows:

Table 1.2 Estimated Annual Additional Manpower Demand from 2019 to 2022

Job Level	Estimated Annual Additional Manpower Demand
Technologist/Managerial	250 – 306
Technician/Supervisory	600 – 734
Craftsman	271 – 331

Major Conclusions and Recommendations**Conclusions**

1.12 The manpower of the manufacturing technology industry in 2018 has decreased slightly versus that in 2015/2016. The number of employees at time of survey has decreased from 39 049 to 38 913 (-136 or -0.3%). The decrease was mainly attributed to the drop at technologist/managerial level (-207 or -2.2%), craftsman level (-194 or -3.1%) and unskilled level (-82 or -6.0%). It was, however, worth noting that a growth was recorded for technician/supervisory level (+378 or +2.0%).

1.13 At the technologist/managerial level, it is estimated that there would be 741 fresh graduates in 2019 and 560 in 2020 qualified to join the manufacturing technology industry based on the information provided by local tertiary institutions and the VTC. Although the supply is likely to meet the estimated annual additional manpower demand of 250 - 306, the

fresh graduates can join other industries and even go to further studies.

1.14 At the technician/supervisory level, most of the supervisors/foremen are usually promoted from experienced leaders or craftsman. The forecast annual additional manpower demand for technicians with mechanical/manufacturing/industrial engineering background for the manufacturing technology industry would be 600 - 734 each year. However, only a total of 80 and 65 fresh technician graduates would be available in 2019 and 2020 respectively from the Youth College of the VTC. It should be noted that some employers would recruit fresh graduates of higher diploma for technician level jobs.

Recommendations

For Employers

1.15 The Training Board is of the view that enterprises should strengthen training in more skilled manpower in anticipation of automated and even smart manufacturing in the areas of applying top-notch technologies in robotics, materials, research and development, product design and innovation, and supply chain management. Coupled with industrial internet of things and big data collection, employers are recommended to invest more resources in attracting and retaining well-trained manpower to sustain their further growth.

1.16 A clear progression pathway and long-term career development for the employees will also benefit the enterprises to have a stable manpower. Employers are encouraged to establish a career advancement route within their companies, and organise or look for appropriate training for their employees to keep abreast of the latest technical knowledge and skills.

1.17 The Training Board also recommends employers to get the assistance from VTC in organising their own training schemes and services offered by VTC such as the statutory Apprenticeship Scheme, Engineering Graduate Training Scheme (EGTS), Voluntary Trade Testing and Certification Scheme, and Reindustrialisation and Technology Training Programme.

For Employees/Training Providers

1.18 Riding on the upgrade of enterprises and amazing development of Mainland China, Hong Kong companies are also aiming at setting up modern industrial system and accelerating the shift towards the high end of global value chain. Employees especially the younger generation are recommended to have better knowledge of the culture and markets of

Mainland China. In addition to acquiring recognised qualifications, they should simultaneously keep on lifelong learning, particularly in obtaining effective technological information.

1.19 Regarding the training of manpower in different job levels, the Training Board's recommendations are summarised below:

(a) Training of Technologists/Managers:

- (i) Training should be conducted through two major routes which are completion of a relevant degree course leading to exemption from academic requirements for corporate membership of a recognised professional institution, or completion of a relevant course such as Higher Diploma in a related engineering discipline. After the studies, they should acquire sufficient on-the-job training and relevant working experience in order to be a qualified technologist/manager.
- (ii) The EGTS is strongly recommended to employers for the practical training of their engineering graduates. The EGTS, in particular, is beneficial to graduates from overseas universities as most of them may not have received approved practical training in their degree programmes. The Pro-Act Training and Development Centres of the VTC, which are approved training established establishments of Hong Kong Institution of Engineers, can arrange eight weeks of basic workshop training under the Scheme.

(b) Training of Technicians/Supervisors:

- (i) Training for those graduates with completion of secondary three or senior secondary education, and working adults, could be done by VTC's Pro-Act Training and Development Centre (Mechanical) and (Precision Engineering), and Hong Kong Institute of Vocational Education.
- (ii) The training programmes including higher diploma, diploma and certificate levels are offered in full-time, part-time day or part-time evening modes for the workforce of the industry.

(c) Training of Craftsmen:

- (i) A route of completion of Certificate of Vocational Education (CVE) programme offered by VTC plus 2 to 3-year organised craft apprenticeship is recommended. It is not only because the training period is shorter but also because holders of the CVE have undergone training in basic skills and would be productive soon after the beginning of their apprenticeship.

INTRODUCTION

II. INTRODUCTION

Background

2.1 The Training Board of the VTC is required by its terms of reference to determine the manpower demand of the manufacturing technology industry and to make recommendations to the Council for the development of training facilities to meet the demand. The Training Board comprises members nominated by major trade associations, trade unions, professional bodies, educational/training institutions and government departments. The Training Board's membership and terms of reference are listed in *Appendices 1 and 3* respectively.

2.2 In pursuance of its terms of reference, the Training Board conducted the 2018 Manpower Survey of the Manufacturing Technology Industry from July to September 2018 to collect up-to-date manpower information with a view to assessing the manpower requirements and training needs of the manufacturing technology industry. This report presents the findings of the survey concerned.

Survey Objective

2.3 The objective of the Survey is to collect the latest manpower information of the manufacturing technology industry. Specifically, the survey aims –

- (a) to collect up-to-date manpower information by principal jobs in related disciplines of the manufacturing technology industry;
- (b) to assess the technical manpower structure;
- (c) to forecast training requirements in the near future; and
- (d) to recommend to the Council the development of training strategies to meet such needs.

Survey Coverage

2.4 Following the rationalisation of Training Boards in 2017, the Manufacturing Technology Industry was a combination of the former Metals Industry and Plastics Industry, with the exclusion of Watch, Clock and Jewellery sectors.

2.5 The Survey covered the following sectors and branches of the manufacturing technology industry:

A. Manufacturing Sector

Metals:

- Branch 1: Plant maintenance section of food, beverage and tobacco manufacturing industries (HSIC 101-108, 110, 120)
- Branch 2: Manufacture of basic metals (HSIC 241-243)
- Branch 3: Manufacture of fabricated metal products (except machinery and equipment) and metal toys (SHIC 251, 259, 3244)
- Branch 4: Manufacture of machinery and equipment (HSIC 281-282)
- Branch 5: Manufacture of medical equipment (HSIC 266, 2672, 3251, 3259)
- Branch 6: Manufacture of electrical equipment (HSIC 271-275, 279)
- Branch 7: Repair and installation of machinery and equipment (HSIC 331-332)

Plastics:

- Branch 11: Manufacture of plastic toys (HSIC 324300)
- Branch 12: Manufacture of plastic domestic utensils (HSIC 222200)
- Branch 13: Manufacture of plastic cases and parts (HSIC 222400)
- Branch 14: Manufacture of plastic bags (except handbags) (HSIC 222300)
- Branch 15: Manufacture of plastic products not elsewhere classified

B. Trading Sector

Metals Trading:

- Branch 8: Wholesale, import and export of machinery, equipment (HSIC 451434, 451621, 451633, 451699, 451711, 452434, 452621, 452633, 452699, 452711, 460434, 460621, 460633, 460699, 460711)

Plastics Trading:

- Branch 16: Import and export of toys (HSIC 451444, 451445, 452444, 452445)
- Branch 17: Import and export of plastic products (HSIC 451451, 452451)

C. Manufacturing Services Sector

Branch 9: Engineering services related to metals industry including material testing, metallurgist, process development/testing, production line consulting/design and quality control (HSIC 712, 719)

Branch 10: Relevant division/department in training/education institutions

Branch 18: Major plastic resin suppliers and design firms of plastics products

(HSIC denotes Hong Kong Standard Industrial Classification)

Sample Design

2.6 The sample design was done by the Census and Statistics Department (C&SD) of the HKSAR in collaboration with the VTC and sample selection was operated by VTC. To ensure the selection of a representative sample and to facilitate subgroup analysis, a total of 1 522 establishments were invited for the survey. Out of this 1 522 establishments, 1 332 were selected by C&SD from the Central Register of Establishments (CRE)¹ using a statistically scientific method of stratified random sampling (comprising strata of establishments by three levels which were sector, branch and employment size). The remaining 190 companies (supplementary sample) were recommended for inclusion in the survey by the Training Board. These companies were prominent companies of other business natures which also employed manufacturing technology employees, such as relevant division/department in training/education institutions, major plastic resin suppliers and design firms of plastic products.

Questionnaire Design

2.7 Survey data were collected through the use of a structured questionnaire. The questionnaire was divided into Part I and II. Part I was the major part of the questionnaire collecting manpower information (number of employees, vacancies, trainees, etc.) by level by principal job while Part II collected supplementary information related to manpower.

2.8 Sample of questionnaire, explanatory notes and job descriptions for principal jobs are given in *Appendix 4A, 4B and 4C*.

¹ The Census and Statistics Department maintains a computerised Central Register of Establishments which contains information relating to some 400 000 active establishments in Hong Kong. Information kept in the Register is updated on a quarterly basis through feedback from various surveys of the department and administrative returns from relevant government departments.

Data Collection Method

2.9 A survey pack, containing a notification letter and a survey questionnaire, together with an explanatory note and a list of principal jobs with job descriptions, was prepared for each of the invited establishments. The survey packs were dispatched by mail/email or in person. Responsible persons of the establishments were asked to provide information regarding the manpower situation in their establishments at the time of survey.

2.10 In respect of manpower information, five levels of job were classified for the manufacturing technology industry, namely:

- (i) Technologist/managerial level;
- (ii) Technician/supervisory level;
- (iii) Craftsman level;
- (iv) Operative level; and
- (v) Unskilled level.

2.11 The list of principal jobs was defined by the Training Board with detailed job description given for each job. While it was understood that the job titles adopted in the establishments might not be exactly the same as the principal jobs, respondents were required to report manpower information corresponding to the principal jobs basing on the job descriptions.

2.12 During the fieldwork period, enumerators made telephone contacts with or visited individual establishments to assist respondents in completing questionnaires or to collect completed ones.

Quality Control Measures

2.13 Various measures were taken to assure the quality of the survey data collected. These included prior fieldwork preparation, thorough training of fieldwork staff, monitoring of the fieldwork execution, measures to increase the response rate, checking of the completed questionnaires, double data entry and validation of the collected data. The detailed quality control measures are shown in *Appendix 6*.

Fieldwork Period and Enumeration Results

2.14 The data collection was carried out between July and September 2018. Among the 1 522 sampled establishments, 997 were successfully enumerated and 98 refused, giving an effective response rate of 91%.² Taking into account (i) the satisfactory response rate of individual branches, (ii) the fact that majority of prominent and sizeable establishments had responded to the survey, and (iii) the grossing-up of sample results basing on statistically-grounded method, it could be concluded that the survey findings presented in this report contributed to a significant level of representativeness of the sector. The response rate achieved for individual sector was also adequate to produce meaningful breakdown by sector (Table 2.1).

Table 2.1 Number of Establishments Successfully Enumerated by Sector

Sector/Branch	No. of Establishments Sampled	No. of Valid Cases	No. of Establishments Successfully Enumerated	Response Rate
A. Manufacturing Sector				
Branch 1: Plant maintenance section of food, beverage and tobacco manufacturing industries	100	56	46	82%
Branch 2: Manufacture of basic metals	25	20	20	100%
Branch 3: Manufacture of fabricated metal products	100	76	66	87%
Branch 4: Manufacture of machinery and equipment	60	33	31	94%
Branch 5: Manufacture of medical equipment	26	23	20	87%
Branch 6: Manufacture of electrical equipment	46	36	32	89%
Branch 7: Repair and installation of machinery and equipment	81	43	37	86%
Branch 11: Manufacture of Plastic Toys	20	14	14	100%
Branch 12: Manufacture of Plastic Domestic Utensils	9	7	7	100%
Branch 13: Manufacture of Plastic Cases and Parts	19	13	12	92%
Branch 14: Manufacture of Plastic Bags (except Handbags)	57	43	43	100%
Branch 15: Manufacture of Plastic Products n.e.c.	61	44	43	98%

² The remaining cases were regarded as invalid cases, including establishments which were suspended operation or no longer belonged to the industry, and so on.

Sector/Branch	No. of Establishments Sampled	No. of Valid Cases	No. of Establishments Successfully Enumerated	Response Rate
B. Trading Sector				
Branch 8: Wholesale, import & export of machinery, equipment	171	106	101	95%
Branch 16: Import & Export of Toys	217	171	150	88%
Branch 17: Import & Export of Plastics Products, Decorative Ornaments and Flowers	249	215	205	95%
C. Manufacturing Services Sector				
Branch 9: Engineering services related to Metals industry including material testing, metallurgist, process development / testing, production line consulting / design and quality control	109	68	60	88%
Branch 10: Relevant division / department in training / education institutions	15	5	5	100%
Branch 18: Major Plastic Resin Suppliers and Design Firms of Plastics Products	157	122	105	86%
Total	1 522	1 095	997	91%

SURVEY FINDINGS

III. SURVEY FINDINGS

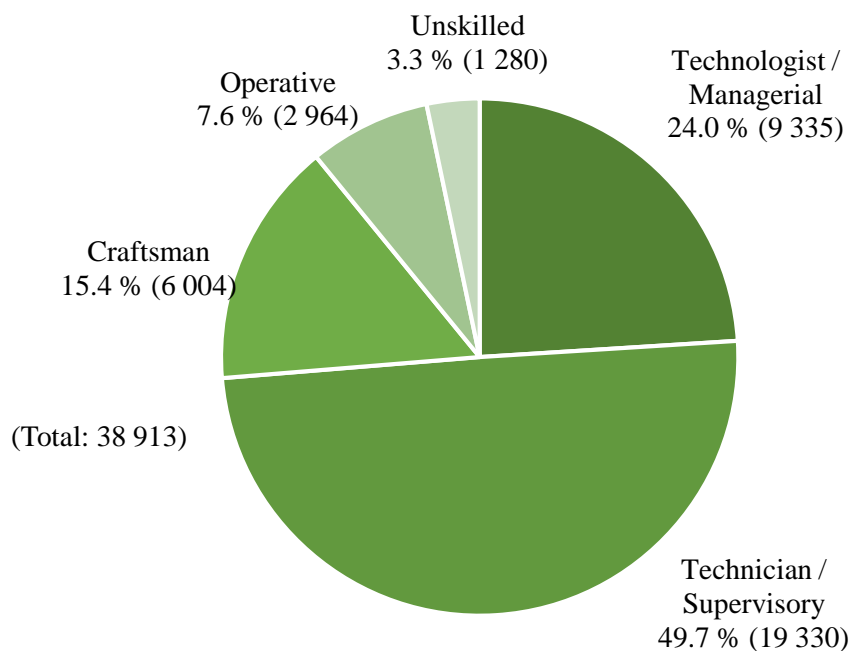
A. Number of Employees

3.1 At the time of survey, a total of 38 913 persons were employed in the principal jobs of the manufacturing technology industry. Of them, 9 335 (24.0%) were at technologist/managerial level, 19 330 (49.7%) at technician/supervisory level, 6 004 (15.4%) at craftsman level, 2 964 (7.6%) at operative level and 1 280 (3.3%) at unskilled level (*Table 3.1, Figure 3.1*).

Table 3.1 Number of Employees by Job Level

Job Level	No. of Employees	Percentage of Total Employed
Technologist/Managerial	9 335	24.0%
Technician/Supervisory	19 330	49.7%
Craftsman	6 004	15.4%
Operative	2 964	7.6%
Unskilled	1 280	3.3%
Overall	38 913	100.0%

Figure 3.1 Number of Employees by Job Level



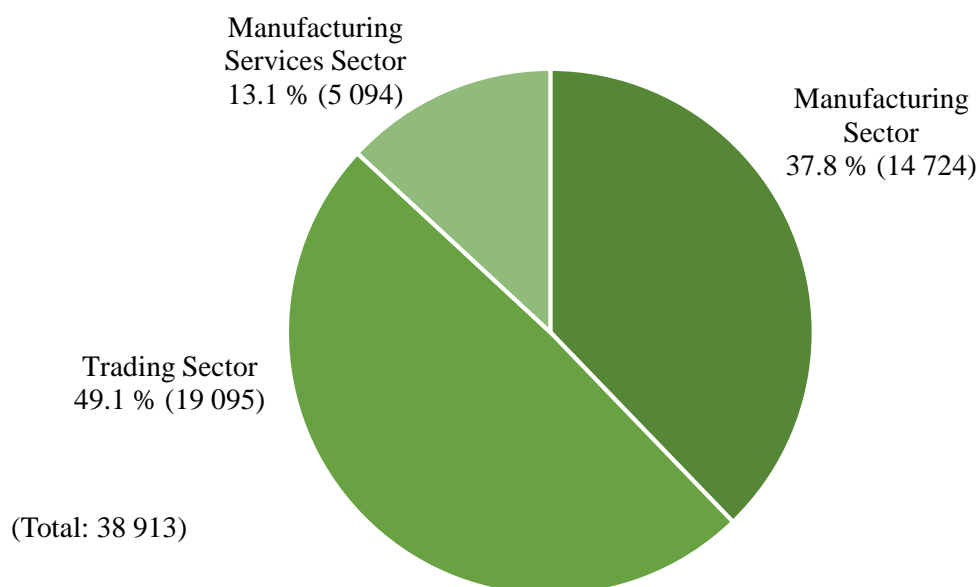
3.2 About half (49.1%) of manpower were engaged in trading sector, followed by 37.8% in manufacturing sector, 9.8% in manufacturing services sector and 3.3% in other sectors (Table 3.2, Figure 3.2).

Table 3.2 Number of Employees by Job Level by Sector

Job Level	Overall	Sector		
		Manufacturing Sector	Trading Sector	Manufacturing Services Sector
Technologist/Managerial	9 335 100%	1 810 19.4%	5 637 60.4%	1 888 20.2%
Technician/Supervisory	19 330 100%	4 722 24.4%	12 127 62.7%	2 481 12.8%
Craftsman	6 004 100%	4 912 81.8%	755 12.6%	337 5.6%
Operative	2 964 100%	2 566 86.6%	135 4.6%	263 8.9%
Unskilled	1 280 100%	714 55.8%	441 34.5%	125 9.8%
Overall	38 913 100%	14 724 37.8%	19 095 49.1%	5 094 13.1%

Note : (1) Percentages are calculated on the basis of total number of employees in particular job level.
(2) Figure may not add up to the totals due to rounding.

Figure 3.2 Number of Employees by Sector



3.3 The principal jobs which accounted for a significant percentage of the manpower in 2018 are listed in Table 3.3.

Table 3.3 Number of Employees by Prominent Principal Jobs

No.	Principal Job	No. of Employees	Percentage of Total Employed
1.	Merchandiser	5 791	14.9%
2.	Technical Sales/Marketing Executive	3 131	8.0%
3.	Mechanical Engineering Technician	2 773	7.1%
4.	Mechanical Fitter	2 364	6.1%
5.	Technical Sales/Marketing Manager	1 549	4.0%
6.	Technical Services Engineer	1 405	3.6%
7.	Technical Services Technician	1 243	3.2%
8.	Logistics Executive/Supervisor	1 148	3.0%
9.	Merchandising Manager	1 137	2.9%
	% of Manpower Covered by the Above Jobs		53%

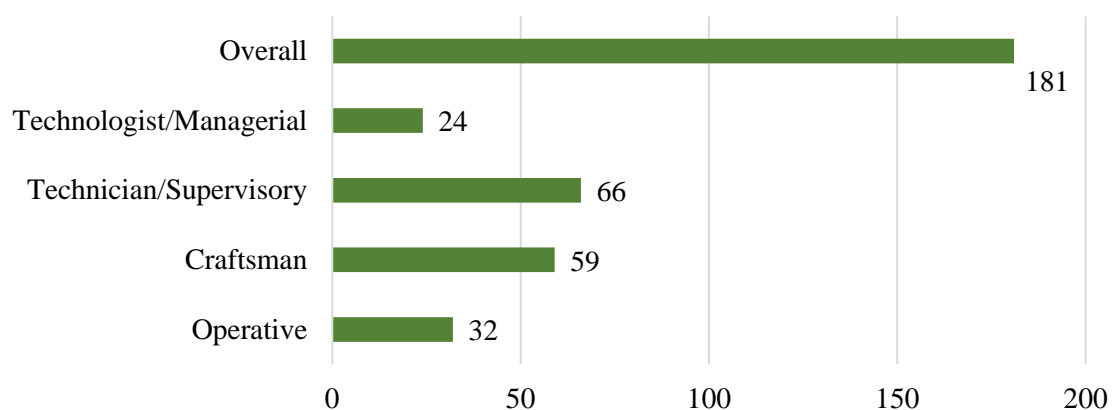
B. Number of Trainees

3.4 At the time of survey, a total of 181 trainees were reported, which accounted for less than 1% of the total of employees and trainees (39 094) of manufacturing technology industry. Most trainees were founded at technician/supervisory and craftsman levels (*Table 3.4, Figure 3.3*).

Table 3.4 Distribution of Trainees by Job Level

Job Level	No. of Trainees	Percentage of Total Employed at the Same Level
Technologist/Managerial	24	0.3%
Technician/Supervisory	66	0.3%
Craftsman	59	1%
Operative	32	1.1%
Overall	181	0.5%

Figure 3.3 Number of Trainees by Job Level



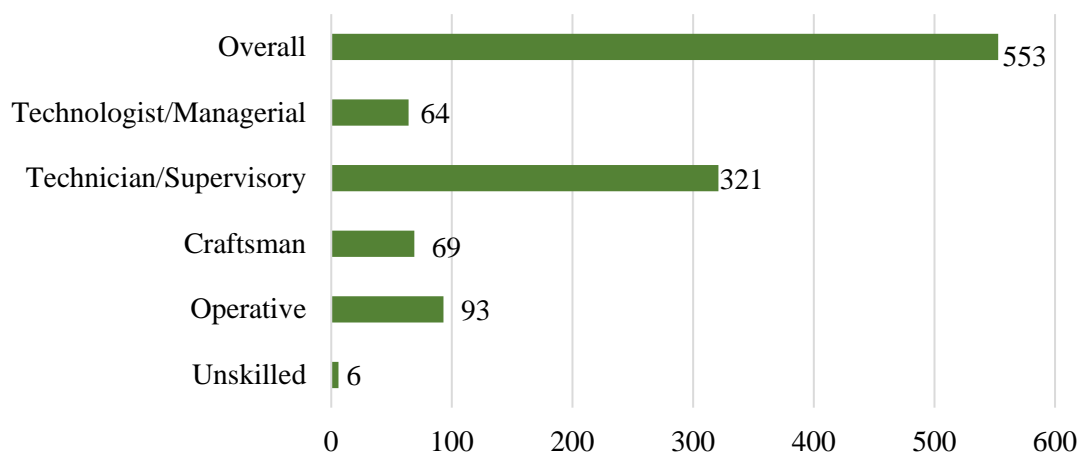
C. Number of Vacancies

3.5 At the time of survey, the total number of job vacancies was 553, representing a vacancy rate of 1.4% of the total of employees and vacancies (39 466) of manufacturing technology industry. The percentage of vacancy against total employed at the same level ranged from 0.5% to 3.0% for various levels (*Table 3.5, Figure 3.4*).

Table 3.5 Distribution of Vacancies by Job Level

Job Level	No. of Vacancies	Percentage of Total Employed at the Same Level
Technologist/Managerial	64	0.7%
Technician/Supervisory	321	1.6%
Craftsman	69	1.1%
Operative	93	3.0%
Unskilled	6	0.5%
Overall	553	1.4%

Figure 3.4 Number of Vacancies of Employees by Job Level



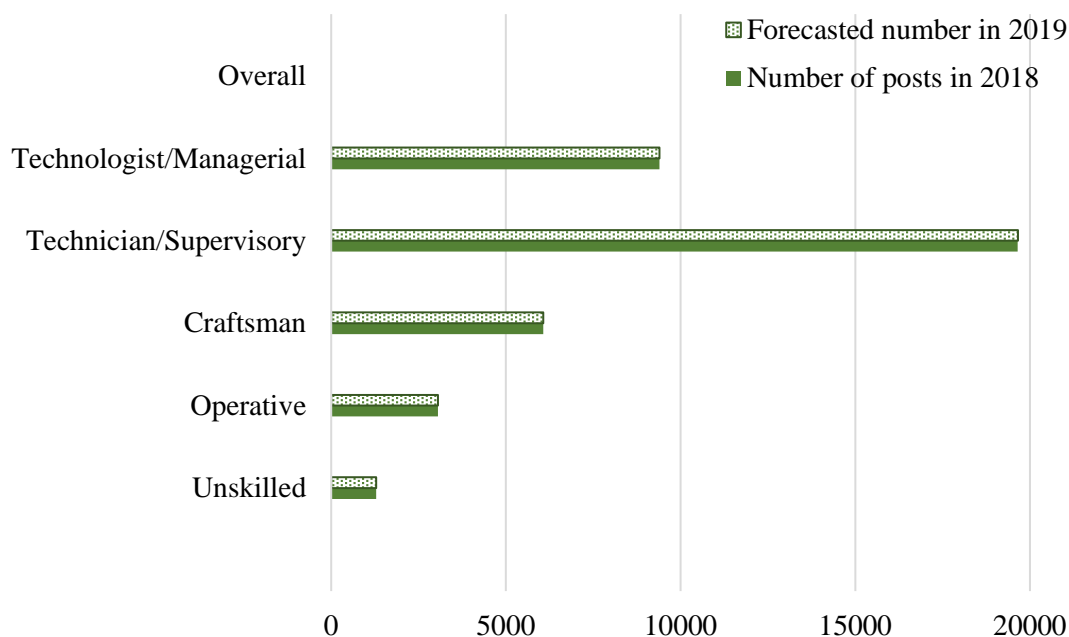
D. Manpower Demand

3.6 Looking at the manufacturing technology industry as a whole, the manpower requirement expected from employers after a year was more or less the same (from 39 466 employees in 2018 to 39 462 in 2019). In other words, employers expected the vacancies would be filled up in 2019 (Table 3.6, Figure 3.5).

Table 3.6 Manpower in 2018 and Employers' Forecast of Manpower Demand in 2019

Job Level	No. of Employees as at 1 July 2018 (a)	No. of Vacancies as at 1 July 2018 (b)	No. of Posts (Employees and Vacancies) as at 1 July 2018 (a)+(b)	Employers' Forecasted No. of Employees as at July 2019 (c)	Employers' Expected Changes in Manpower as at July 2019 against 2018
Technologist/Managerial	9 335	64	9 399	9 393	-6 (-0.1%)
Technician/Supervisory	19 330	321	19 651	19 655	4 (+0.02%)
Craftsman	6 004	69	6 073	6 071	-2 (-0.03%)
Operative	2 964	93	3 057	3 057	0 (0%)
Unskilled	1 280	6	1 286	1 286	0 (0%)
Overall	38 913	553	39 466	39 462	-4 (-0.01%)

Figure 3.5 Manpower in 2018 and Employers' Forecast of Manpower in 2019



E. Average Monthly Income Range of Employees

3.7 Overall, the average monthly income range of employees centralised to middle range of \$15,000 to \$30,000 (79.8%). As expected, the average monthly income range generally increased with the job level of employees (*Table 3.7*).

Table 3.7 Distribution of Average Monthly Income Range by Job Level

Job Level	\$10,000 or below	\$10,001 - \$15,000	\$15,001 - \$20,000	\$20,001 - \$25,000	\$25,001 - \$30,000	\$30,001 - \$40,000	Over \$40,000
Technologist/Managerial	-	0.1%	4.1%	21.1%	40%	27.9%	6.8%
Technician/Supervisory	*	7.2%	44.2%	43.2%	4.3%	0.7%	0.4%
Craftsman	-	13.1%	61.4%	25.5%	-	-	-
Operative	2.6%	34.1%	61.9%	1.2%	0.2%	-	-
Unskilled	12.6%	81.8%	5.5%	-	-	-	-
Overall	0.6%	11.1%	37.7%	30.7%	11.4%	6.8%	1.7%

Note : (1) * Less than 0.05%.

(2) Figure may not add up to the totals due to rounding.

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

3.8 Over three quarters (76.6%) of the posts at technologist/managerial level were preferred to have first degree or above qualification and over half (57.9%) of the posts at technician/supervisory level were preferred to have sub-degree or diploma/certificate qualification. As for craftsman level, 42.1% of the posts were preferred to have diploma/certificate qualification and 44.6% to have secondary 4 to 7 qualification (*Table 3.8*).

Table 3.8 Preferred Education for Employees by Job Level

Job Level	Postgraduate Degree	First Degree	Sub-degree	Diploma/Certificate	Secondary 4 to 7	Secondary 3 or below
Technologist/Managerial	12.8%	63.8%	19.6%	3.3%	0.5%	-
Technician/Supervisory	0.1%	17.7%	39.1%	18.8%	24.3%	-
Craftsman	-	-	-	42.1%	44.6%	13.3%

3.9 On-the-job training was overwhelmingly preferred mode to training for employees (*Table 3.9*).

Table 3.9 Preferred Training Mode for Employees by Job Level

Job Level	On-the-job Training	Graduate Traineeship	Apprenticeship
Technologist/Managerial	93.4%	6.6%	-
Technician/Supervisory	99.7%	0.3%	0.1%
Craftsman	90.1%	-	9.9%

Note: Figure may not add up to the totals due to rounding.

3.10 43.1% of the posts at technologist/managerial level were preferred to have training for 2 to 3 years while a larger proportion of the posts at technician/supervisory level and craftsman level were preferred to have training for 1 to 2 years (47.1% and 66.1% respectively). The views of employers on the preferred education are given in table 3.10.

Table 3.10 Preferred Training Period for Employees by Job Level

Job Level	4 years or above	3 to less than 4 years	2 to less than 3 years	1 to less than 2 years	6 months to less than 1 year
Technologist/Managerial	7.0%	24.5%	43.1%	25.3%	0.1%
Technician/Supervisory	0.2%	3.4%	40.0%	47.1%	9.3%
Craftsman	0.2%	6.6%	19.9%	66.1%	7.2%

G. Internal Promotion

3.11 In the 12 months prior to the survey, a total of 233 employees were promoted to higher level jobs in their own companies, which accounted for 0.6% of the total of employees (*Table 3.11*).

Table 3.11 Internal Promotion within the Establishments

Internal Promotion	No. of Employees	Percentage of Total Employed in the Promotion Level
Technician/Supervisor promoted to Technologist/Manager	84	0.9%
Craftsman promoted to Technician/Supervisor	68	0.4%
Operative/Unskilled promoted to Craftsman	81	1.3%
Total	233	0.6%

H. Hong Kong Technical Staff Posted Outside Hong Kong

3.12 Employers reported that a total of 997 employees (or 2.6% of the total of employees) had been deployed to work outside Hong Kong more than 6 months during the past 12 months, of which 438 were at technologist/managerial level, 536 at technician/supervisory level and 23 at craftsman level (*Table 3.12*). The 997 employees might also include those who travelled to and fro between the Mainland and Hong Kong frequently but with over 50% of their time working at Mainland operations.

Table 3.12 Hong Kong Technical Staff Posted outside Hong Kong in the Past 12 months

Job Level	No. of Employees	Percentage of Total Employed
Technologist/Managerial	438	4.7%
Technician/Supervisory	536	2.8%
Craftsman	23	0.4%

I. With Manufacturing Technology Industry Related Operations in the Mainland of China

3.13 At the time of survey, a total of 448 841 Mainland workers were employed for the operation of company in the Mainland China. Among these workers, 28 262 were Mainland engineers/technologists. Employers also forecasted that the number of technologists in their Mainland operations would be 28 310 in 2019 (*Table 3.13*).

Table 3.13 Number of Mainland Workers/Technologists Employed for the Operation in the Mainland China

Total number of workers	448 841
Number of technologists/engineers	28 262
Employers' forecast on number of technologists as at July 2019	28 310

J. Employer's View on the Expected Change in Business Situation

3.14 The vast majority of the employers in the manufacturing technology industry forecasted that the business situation would be the same in the coming year (93.9%) as well as in the coming three years (95.1%). The employers' view are given in table 3.14.

Table 3.14 Employers' View on the Expected Change in Business Situation

	Better	The same	Worse
Coming year	0.7%	93.9%	5.5%
Coming three years	0.5%	95.1%	4.4%

Note: Figure may not add up to the totals due to rounding.

3.15 At the time of survey, only a minority expected that the business situation would be worse. The main reasons were “poor business environment/shrinking business in scope/volume” and “poor economy” (Table 3.15).

Table 3.15 Reasons to Expect Worse Business Situation in the Coming Year/Three Years

	Coming year	Coming three years
Poor business environment/shrinking business in scope/volume	31.3%	38.3%
Poor economy	23.9%	29.4%
Trade war between China and USA	17.4%	1.4%
Industry/factory moving to the Mainland China	7.7%	9.6%
Difficult to hire people/professionals	7.1%	8.6%
Rising costs	3.5%	3.3%
Online trading is affecting the business	3.1%	0.5%
High competition	0.8%	1.2%
Others	1.7%	1.9%

Note: Percentages are calculated on the basis of 518 and 418 companies which anticipated worse business in the coming year and coming three years.

OBSERVATIONS AND CONCLUSIONS

IV. OBSERVATIONS AND CONCLUSIONS

General

4.1 The Training Board has carefully examined the survey findings and considers that the data collected generally reflect the actual employment situation of the manufacturing technology industry at the time of the survey.

A. Manpower Changes

Number of employees

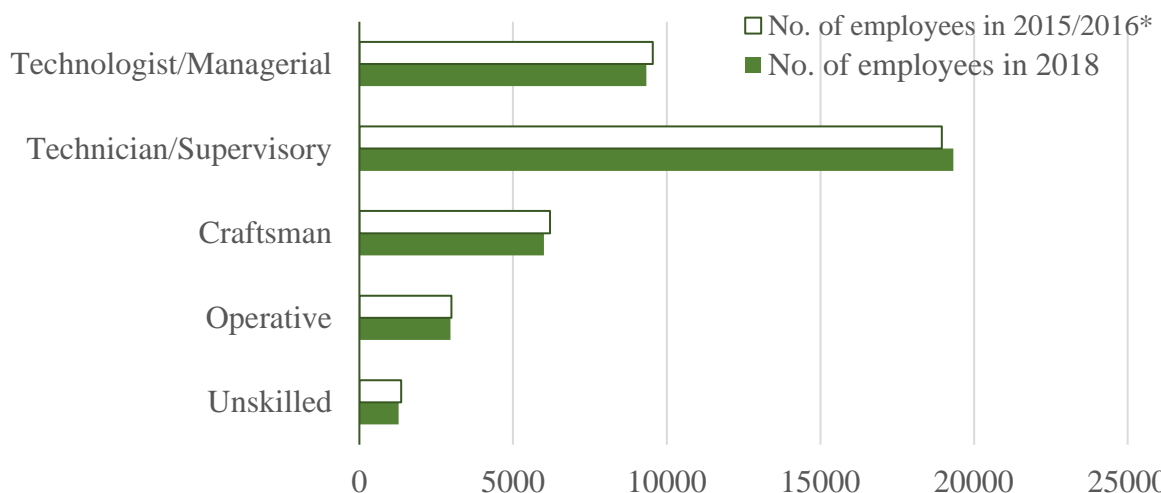
4.2 The manpower changes of the manufacturing technology industry by job level versus last round of survey are shown in Table 4.1 and Figure 4.1.

Table 4.1 Number of Employees at Time of Survey by Job Level vs Last Round

Job Level	Current Round	Last Round*	No. of Increase / Decrease	% Changes
Technologist/Managerial	9 335	9 542	-207	-2.2%
Technician/Supervisory	19 330	18 952	+378	+2.0%
Craftsman	6 004	6 198	-194	-3.1%
Operative	2 964	2 995	-31	-1.0%
Unskilled	1 280	1 362	-82	-6.0%
Overall	38 913	39 049	-136	-0.3%

* The figures of last round survey refer to those collected from the MPS of Metals Industry of 2016 and MPS of Plastics Industry of 2015 with the exclusion of corresponding figures of Watch, Clock and Jewellery sectors.

Figure 4.1 Manpower Changes between 2015/2016* and 2018



4.3 The manpower of the manufacturing technology industry has decreased slightly versus last round. The number of employees at time of survey has decreased from 39 049 to 38 913 (-136 or -0.3%). The decrease was mainly attributed to the drop at technologist/managerial level (-207 or -2.2%), craftsman level (-194 or -3.1%) and unskilled level (-82 or -6.0%). It was, however, worth noting that a growth was recorded for technician/supervisory level (+378 or +2.0%).

Number of trainees

4.4 The number of trainees of the manufacturing technology industry by job level versus last round of survey are shown in Table 4.2 and Figure 4.2.

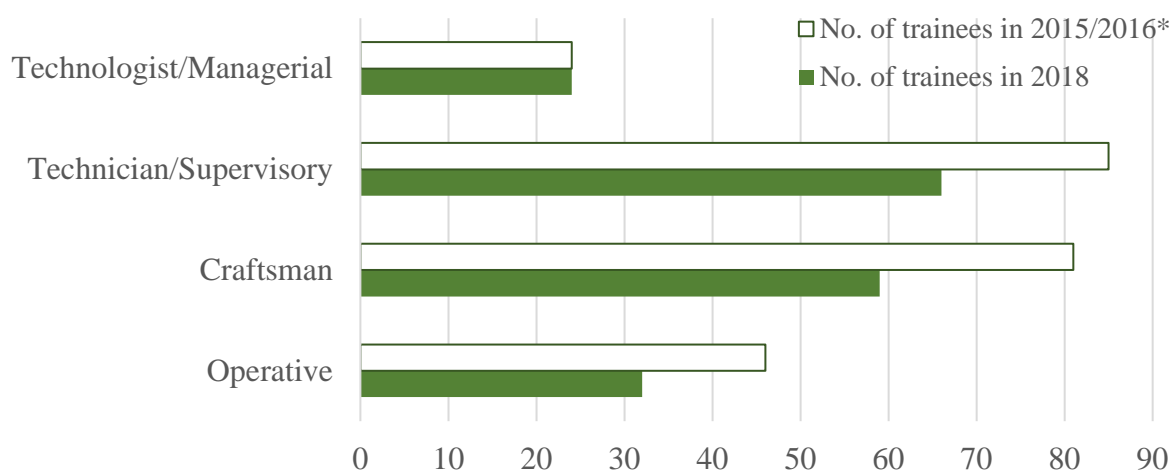
4.5 Similar to the number of employees, the number of trainees of the manufacturing technology industry has also decreased versus last round but at a larger magnitude by 23.3% from 236 to 181. The decrease was mainly observed at technician/supervisory level (-19 or -22.4%), craftsman level (-22 or -27.2%) and operative level (-14 or -30.4%).

Table 4.2 Number of Trainees at Time of Survey by Job Level vs Last Round

Job Level	Current Round	Last Round*	No. of Increase / Decrease	% Changes
Technologist/Managerial	24	24	0	0.0%
Technician/Supervisory	66	85	-19	-22.4%
Craftsman	59	81	-22	-27.2%
Operative	32	46	-14	-30.4%
Unskilled	0	0	0	-
Overall	181	236	-55	-23.3%

* The figures of last round survey refer to those collected from the MPS of Metals Industry of 2016 and MPS of Plastics Industry of 2015 with the exclusion of corresponding figures of Watch, Clock and Jewellery sectors.

Figure 4.2 Number of Trainees in 2015/2016* and 2018



Number of vacancies

4.6 The number of job vacancies of the manufacturing technology industry by job level versus last round of survey are shown in Table 4.3 and Figure 4.3.

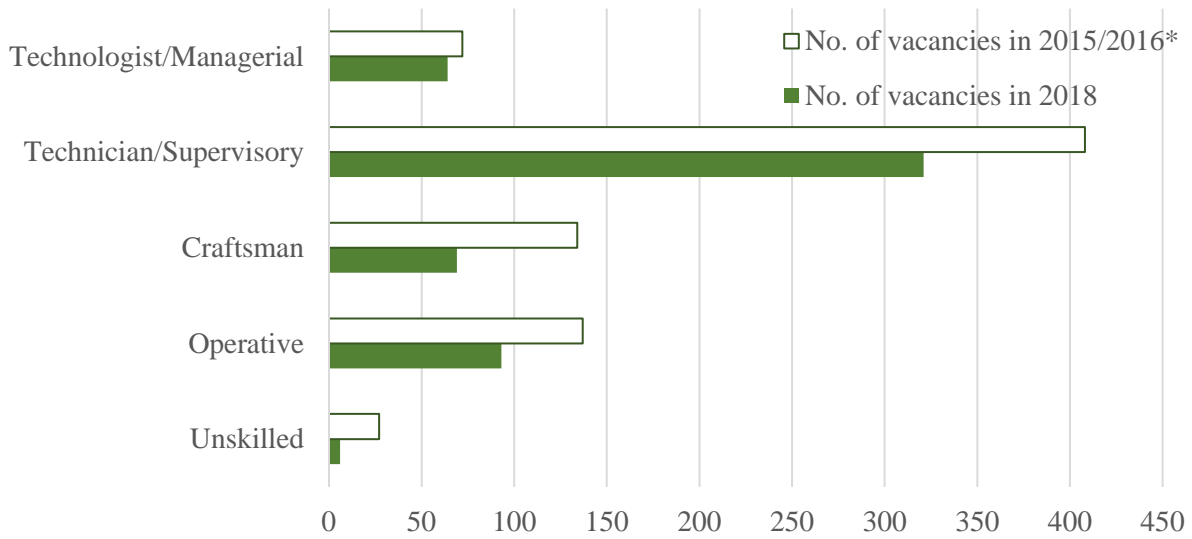
4.7 Similar to the number of trainees, the number of job vacancies of the manufacturing technology industry has also decreased versus last round at a large magnitude by 28.9% from 778 to 553. The decrease was mainly attributed to the drop at technician/supervisory level (-87 or -21.3%), craftsman level (-65 or -48.5%), operative level (-44 or -32.1%) and unskilled level (-21 or -77.8%).

Table 4.3 Number of Vacancies at Time of Survey by Job Level vs Last Round

Job Level	Current Round	Last Round*	No. of Increase / Decrease	% Changes
Technologist/Managerial	64	72	-8	-11.1%
Technician/Supervisory	321	408	-87	-21.3%
Craftsman	69	134	-65	-48.5%
Operative	93	137	-44	-32.1%
Unskilled	6	27	-21	-77.8%
Overall	553	778	-225	-28.9%

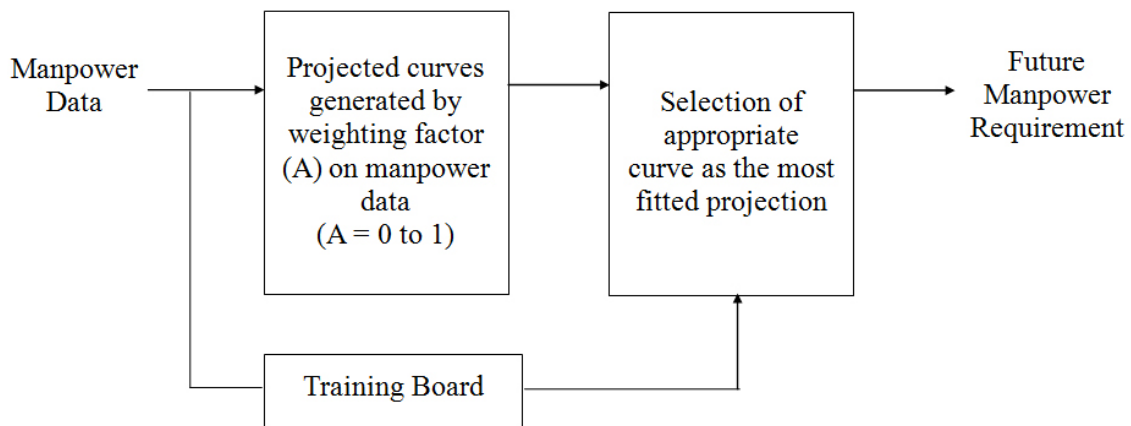
* The figures of last round survey refer to those collected from the MPS of Metals Industry of 2016 and MPS of Plastics Industry of 2015 with the exclusion of corresponding figures of Watch, Clock and Jewellery sectors.

Figure 4.3 Number of Vacancies in 2015/2016* and 2018



B. Projected Manpower Demand

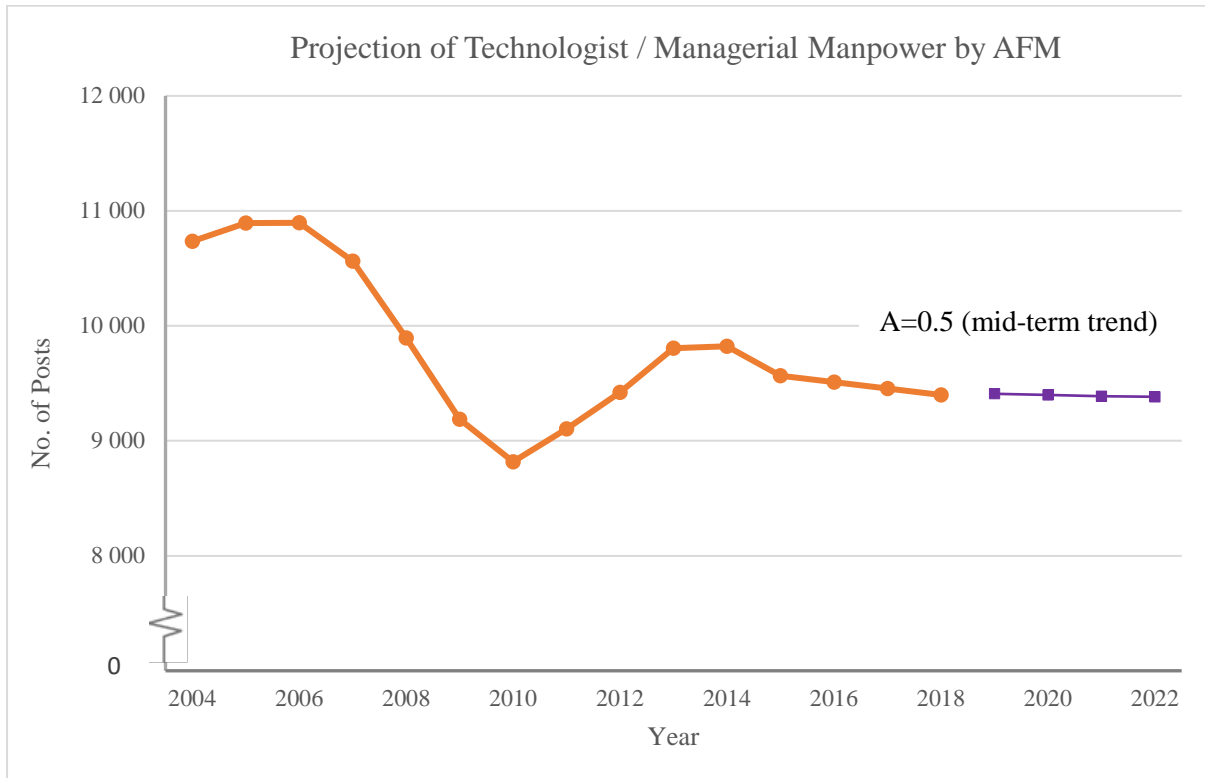
4.8 The Training Board has adopted the Adaptive Filtering Method (AFM) to generate a set of projections on the industry’s future manpower demand. The AFM is a ‘curve fitting’ method for trend analysis. It is illustrated in the following diagram:

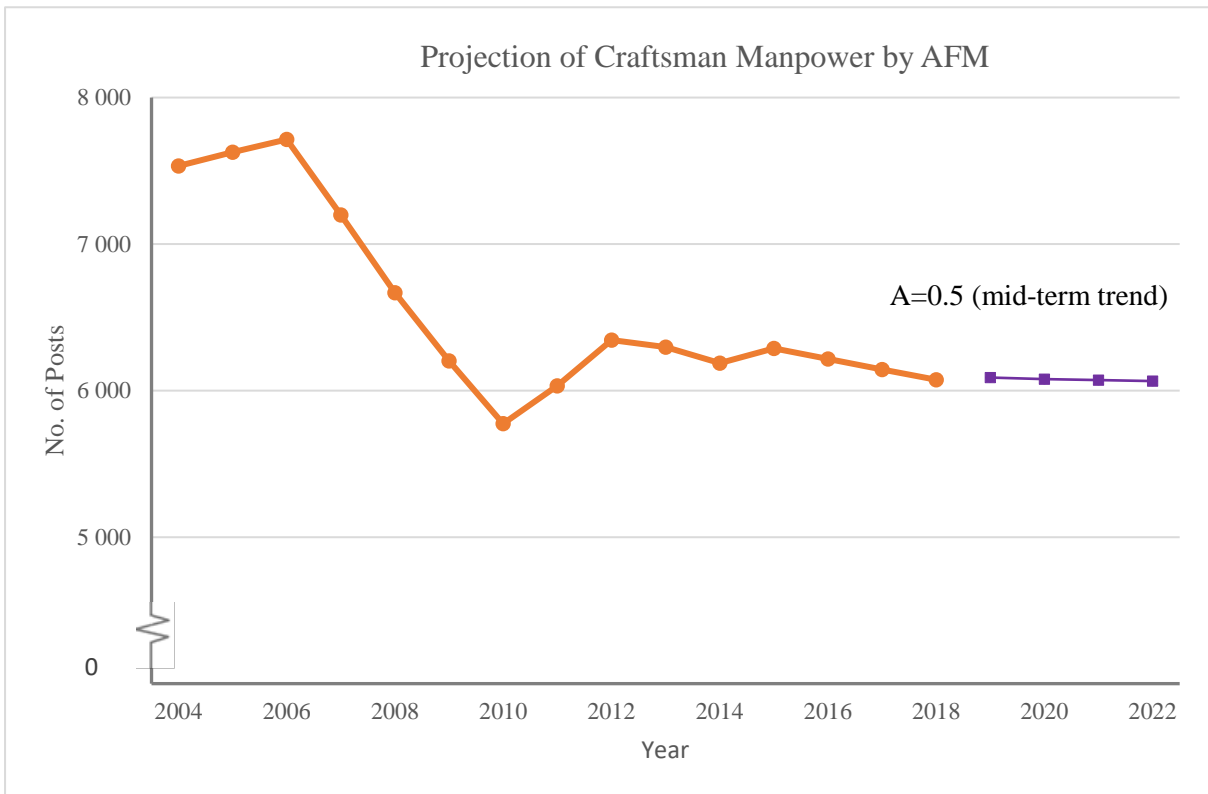
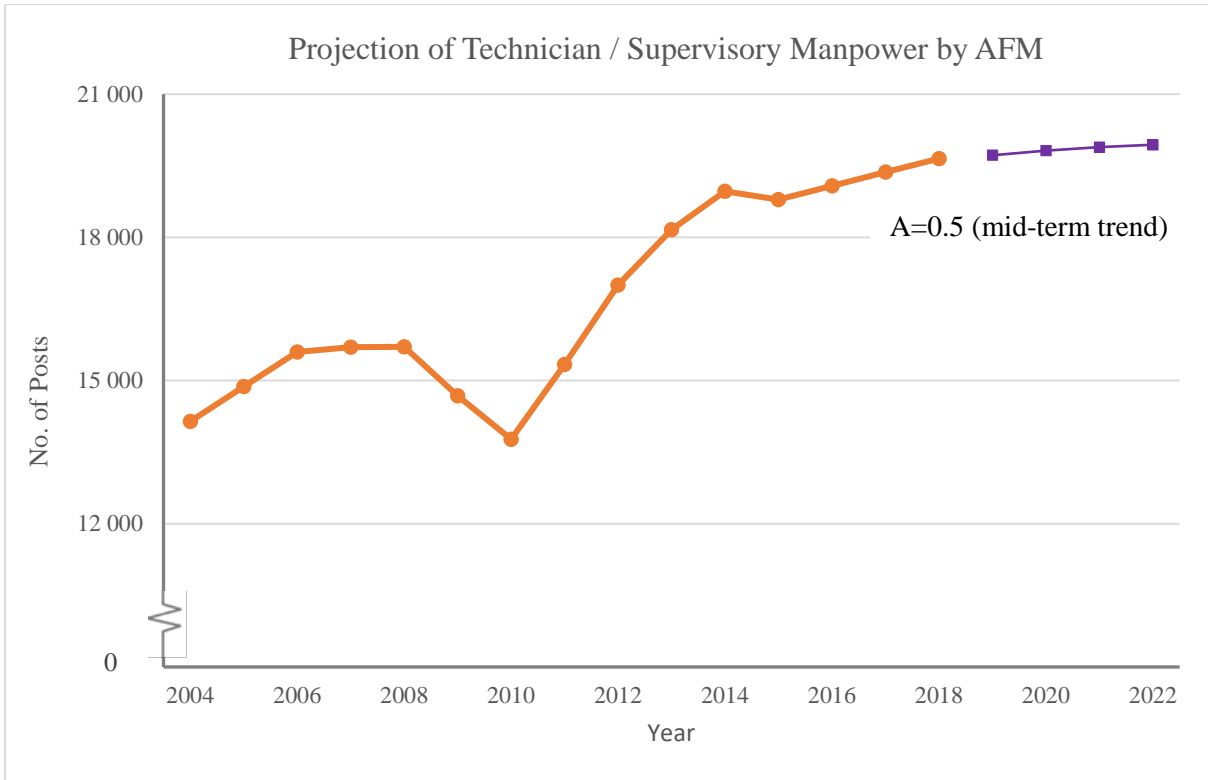


Past survey data are weighted. Weighting factor (A) controls whether a long term trend or a short term trend is favoured. The higher the value of (A), the heavier the weighting of the recent survey data (i.e. bias to the short term trend). The Training Board considers factors such as market trends, technological 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.

4.9 Based on the findings of the 2018 and previous rounds of manpower surveys, the Training Board has decided to adopt the curve of mid-term trend of AFM for the manpower projection of different job levels for the period from 2019 to 2022. The projections are illustrated in Figure 4.4.

Figure 4.4 Projection of Manpower at Different Job Levels





4.10 The Training Board has also estimated the wastage rates, i.e. employees leaving the industry due to retirement, emigration, changing jobs to other industries, for technologist/managerial, technician/supervisory and craftsman manpower. It was decided the wastage rate of 3% for technologist/managerial and technician/supervisory levels, and 5% for craftsman be adopted for manpower projection.

4.11 Based on the decisions mentioned in paragraphs 4.9 and 4.10, the Training Board's estimates of the annual additional manpower demand by the industry to cover growth and wastage at the three job levels for the next four years are given in Table 4.4 below:

Table 4.4 Estimated Annual Additional Manpower Demand from 2019 to 2022

Job Level	Estimated Annual Additional Manpower Demand
Technologist/Managerial	250 - 306
Technician/Supervisory	600 - 734
Craftsman	271 - 331

4.12 The Training Board will conduct another manpower survey in 2022 to update the manpower statistics and review the training requirement of the industry.

Manpower Demand and Supply Analysis

4.13 At the technologist/managerial level, the estimated annual additional manpower demand with manufacturing technology background is 250 - 306. Based on the information provided by local tertiary institutions and the VTC, the planned output of fresh graduates including first degree and higher diploma graduates in the mechanical/manufacturing/industrial engineering is summarised in Table 4.5 below. It is estimated that there would be some 741 fresh graduates in 2019 and 560 in 2020 qualified to join the manufacturing technology industry at the technologist/managerial level. It should be noted that some employers prefer to recruit higher diploma fresh graduates for technician level jobs. However, over 30% of higher diploma graduates opt to pursue further studies and obtain first degree before entering the job market. The actual number of fresh graduates entering jobs of technologist/managerial level should be smaller than the number shown in Table 4.5.

Table 4.5 Supply of Fresh Graduates at Technologist/Managerial Level in Mechanical/Manufacturing/Industrial Engineering

Institution	Award	Estimated No. of Graduates	
		2019	2020
Local Universities	Degree	455	387
	Higher Diploma	32	32
Hong Kong Institute of Vocational Education	Higher Diploma – Mechanical Engineering	230	130
	Higher Diploma – Testing and Certification	24	11

4.14 Apart from further studies or emigration, the above fresh graduates can join many industries such as electronics, electrical and services industries other than the manufacturing technology. To attract the right calibre of graduates to work in the manufacturing technology 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.

4.15 At the technician/supervisory level, supervisors/foremen are usually promoted from experienced leaders or craftsmen, and those electronics/electrical engineering technicians and laboratory/materials technicians are recruited from graduates of other disciplines. The forecast annual additional manpower demand for technicians with mechanical/manufacturing/industrial engineering background for the manufacturing technology industry would be 600 - 734 each year.

4.16 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 VTC. A total of some 80 and 65 fresh technician graduates would be available in 2019 and 2020 respectively to join the manufacturing technology industry. The planned output is shown in Table 4.6.

Table 4.6 Supply of Fresh Graduates at Technician/Supervisory Level in Mechanical/Manufacturing/Industrial Engineering

Institution	Award	Estimated No. of Graduates	
		2019	2020
Youth College	DVE – Mechanical Engineering	80	65

4.17 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 manufacturing technology industry.

4.18 At the craftsman level, the forecast demand for additional manpower is 271 - 331 per year.

4.19 Starting from 2009/2010, secondary school Form 3 leavers could enrol in the Diploma of Vocational Education (DVE) Programme offered by the Youth College of the VTC. 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 Certificate of Vocational Education (CVE) or DVE award. Holders of CVE can fill the craftsman-level vacancies. Assuming that students opting for the CVE award complete their studies in one and half year, part of the DVE intakes in 2019 and 2020 can join the manufacturing technology industry as craftsman in 2021 and 2022. Table 4.7 lists the planned number of secondary school Form 3 leavers enrolled into the DVE programmes related to Mechanical/Manufacturing/Industrial Engineering.

Table 4.7 Planned Intakes of Secondary School Form 3 Leavers of DVE Programme related to Mechanical/Manufacturing/Industrial Engineering

Institution	Programme	Planned Intakes	
		2019	2020
Youth College	DVE – Mechanical Engineering	155	180

4.20 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.

Business Outlook

Global Economy

4.21 The global trade is expected to encounter adverse circumstances and increasing uncertainties in the days to come in view of the emerging protectionism and localism. The trade disputes between China and the United States, even though initial agreements could be made, are likely not to be resolved in a longer period of time. The continuous Sino-US trade conflicts would further weaken the economies of Mainland China and Hong Kong, and eventually have negative effects on the manufacturing technology industry.

4.22 Among other developed countries, Europe is one of traditional export destinations of manufacturing technology industry. The pace of overall economic growth is projected to be moderate in the coming future but subject to uncertainty. The departure of the United Kingdom (UK) from the European Union (EU), regardless of a hard or soft Brexit, would very probably make disruption to both the EU and UK economies in the coming years. On the other hand, Hong Kong manufacturers are facing fierce competition in the areas of quality and production cost from enterprises in the Eastern Europe. The competitors in the Eastern Europe are even more flexible to make products in small batches to cater for the needs of different markets.

Mainland China

4.23 Under the 13th Five-Year Plan of Mainland China, an initiative of upgrading traditional manufacturing industry to high value-added industry was introduced. 2019 will be the fourth year of the implementation of this Plan. It is expected that the competition between Hong Kong manufacturers and those of Mainland will be keener in the future 10 years. The rapid development of Pearl River Delta (PRD), where most Hong Kong-based manufacturers are located, will further intensify the competition in the region.

4.24 Guangdong-Hong Kong-Macao Greater Bay Area was officially elevated as the third national regional development strategy. This will open up opportunities for Hong Kong to work with other cities in the Greater Bay Area to develop a high manufacturing technology industry chain that serves the Greater Bay Area, the Mainland and global markets. The target is to optimise the framework of manufacturing technology development and to accelerate the shift towards the high end of global value chains.

4.25 The Mainland is committed to improving the environment, reducing pollution and strengthening safety production. The government authority takes a more strict approach

to implement new policies especially in conducting inspection and may even suspend operation of those who comply with the regulations. This pressure in addition to rising production costs including materials and wages, labour shortage, as well as regulatory changes such as the Labour Law have imposed great challenges on Hong Kong manufacturers.

Hong Kong

4.26 Re-industrialisation has been a hot issue of manufacturing technology industry and top agenda item of the Hong Kong Government. The industry is hopefully to regain growth momentum through introduction and development of high-end manufacturing that are suitable for Hong Kong and retain high value-added process here. This will in return facilitate economic growth and create premium job opportunity in the city. However, those manufacturers who intend to relocate their operations in Hong Kong are very hard to find both the appropriate space and young talents with manufacturing knowledge and experience they needed.

4.27 The policy of current Hong Kong Government is to strive for innovation and develop a high value-added and diversified economy. The government is expecting the manufacturing technology industry to contribute more to Hong Kong's gross domestic product. In this regard, the Chief Executive is promoting high-end manufacturing through expedition of re-industrialisation. The Precision Manufacturing Centre in Tai Po Industrial Estate and the Advanced Manufacturing Centre to be completed in Tsuen Kwan O Industrial Estate will provide the industry with facilities for smart production. In addition to other government's initiatives such as Technology Talent Scheme, it is believed that the revitalisation of manufacturing technology industry to be driven by technology and innovation could be made.

Manufacturing Technology Industry

4.28 "Industry 4.0" is known as a rising manufacturing revolution which will increase productivity and modify the profile of the workforce. It implies that production is digitised and embedded into the manufacturing network which consists of machinery, robots and other systems. Manufacturing technology industry is being transformed to smart production by integrating automation, artificial intelligence, and internet of things to foster production efficiency and effectiveness. In the coming future, more enterprises will introduce more smart devices and application of "Industry 4.0" to enhance product quality and factory operation.

4.29 Since customers nowadays prefer personalised products and services, this radical change in consumer behaviour has made the traditional practice of manufacturing technology

industry with low cost through mass production in difficult circumstances. Consumers in the internet era would also like to engage in online shopping to choose their favourite models or even products with their own designs. Manufacturers should exercise latest technologies and their equipment to offer more flexibility to cope with the high-variety but low-volume market demand.

RECOMMENDATIONS

V. RECOMMENDATIONS

Overview

5.1 The economic reform of Mainland China began 40 years ago which has resulted in a gradual relocation and setting up of production operations from Hong Kong to PRD due to lower cost of production. The manufacturing technology industry including tooling, metals and plastics sectors has undergone a substantial restructuring process for past few decades. Although many manufacturing activities do not take place in Hong Kong, the majority of the orders received and products sold are through Hong Kong offices to the global markets. In other words, the relocation of lower skilled and labour-intensive activities to PRD has in return helped the focus of higher valued functions such as product design and development, sales and marketing, and financial management in Hong Kong.

5.2 In recent years, Hong Kong employers have been facing tremendous challenges owing to uncertainties in international trade and rising production costs in Mainland China. In addition to Sino-US trade disputes, the increasing severe business environment in Mainland such as labour shortages, stricter environmental protection regulation and rising material costs have put more pressure on Hong Kong enterprises to adjust their business strategies. The Hong Kong companies are in fact making greater efforts in developing mature and new markets overseas, and even exploring the Mainland domestic markets. On the other hand, they are also more pro-active in transformation and upgrade their production in order to meet the keen market competition and sophisticated clients' requirements.

5.3 To make the above strategic changes successfully, training of top talents and technical personnel is one of critical factors. The Training Board is of the view that enterprises should strengthen training in more skilled manpower in anticipation of automated and even smart manufacturing. Advanced manufacturing covers the areas of applying top-notch technologies in robotics, materials, research and development, product design and innovation, and supply chain management. Coupled with industrial internet of things and big data collection, the Training Board recommends employers in manufacturing technology industry to invest more resources in attracting and retaining well-trained manpower to sustain their further growth. Thus, they should organise or look for established training for their employees to keep abreast of the latest technical knowledge and skills. A clear progression pathway and long-term career development for the employees will also benefit the enterprises to have a stable manpower.

5.4 Riding on the joint upgrading and development of Guangdong-Hong Kong-Macao Greater Bay Area, Hong Kong companies are also aiming at setting up modern

industrial system and accelerating the shift towards the high end of global value chain. Under such circumstances, the employees especially the younger generation are encouraged to have better knowledge of the culture and markets of Mainland China. In addition to acquiring recognised qualifications, they should simultaneously keep on lifelong learning, particularly in obtaining effective technological information.

Annual Intake of Trainees

5.5 At the time of the survey, there were 181 persons receiving various forms of training. Of these, 24 were at technologist/managerial level, 66 at technician level, 59 at craftsman level, and 32 at operative level.

5.6 Based on the survey data collected and the AFM, the Training Board recommends the manufacturing technology industry as a whole should embark on a manpower training programme of a scale as set out in Table 5.1 below.

Table 5.1 Recommended Number of Trainees to be Taken on Annually for the Next Four Years (2019 - 2022)

Job Level	Recommended Annual Intake
Technologist/Managerial	250 - 306
Technician/Supervisory	600 - 734
Craftsman	271 - 331

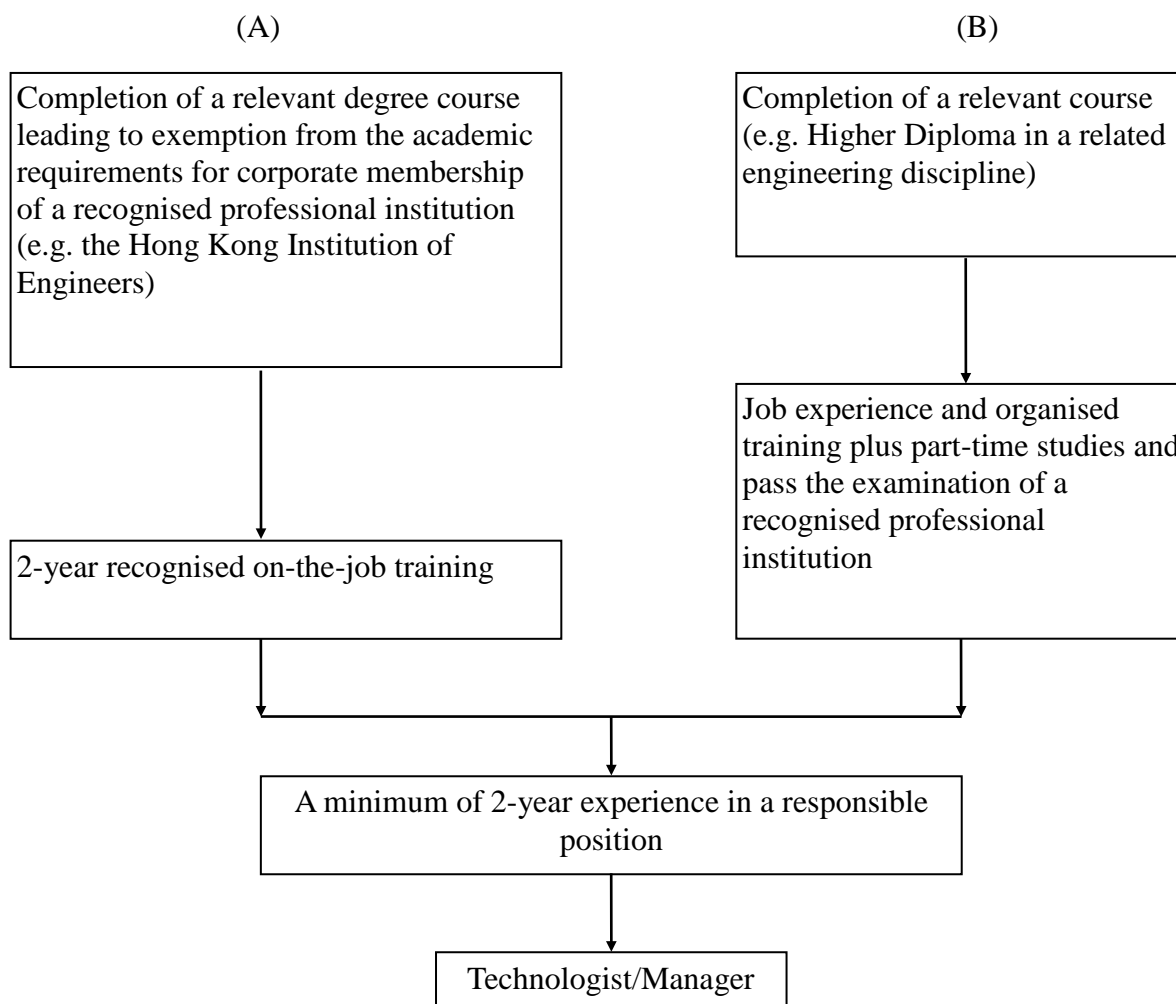
5.7 For manpower planning at the company level, employers are requested to note that the number of trainees set out in Table 5.1, when expressed in terms of existing manpower, represents an average annual intake of 3.0%, 3.5% and 5.0% respectively of the number of technologists/managers, technicians/supervisors and craftsmen presently employed.

Training of Technologists/Managers

5.8 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.

5.9 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:



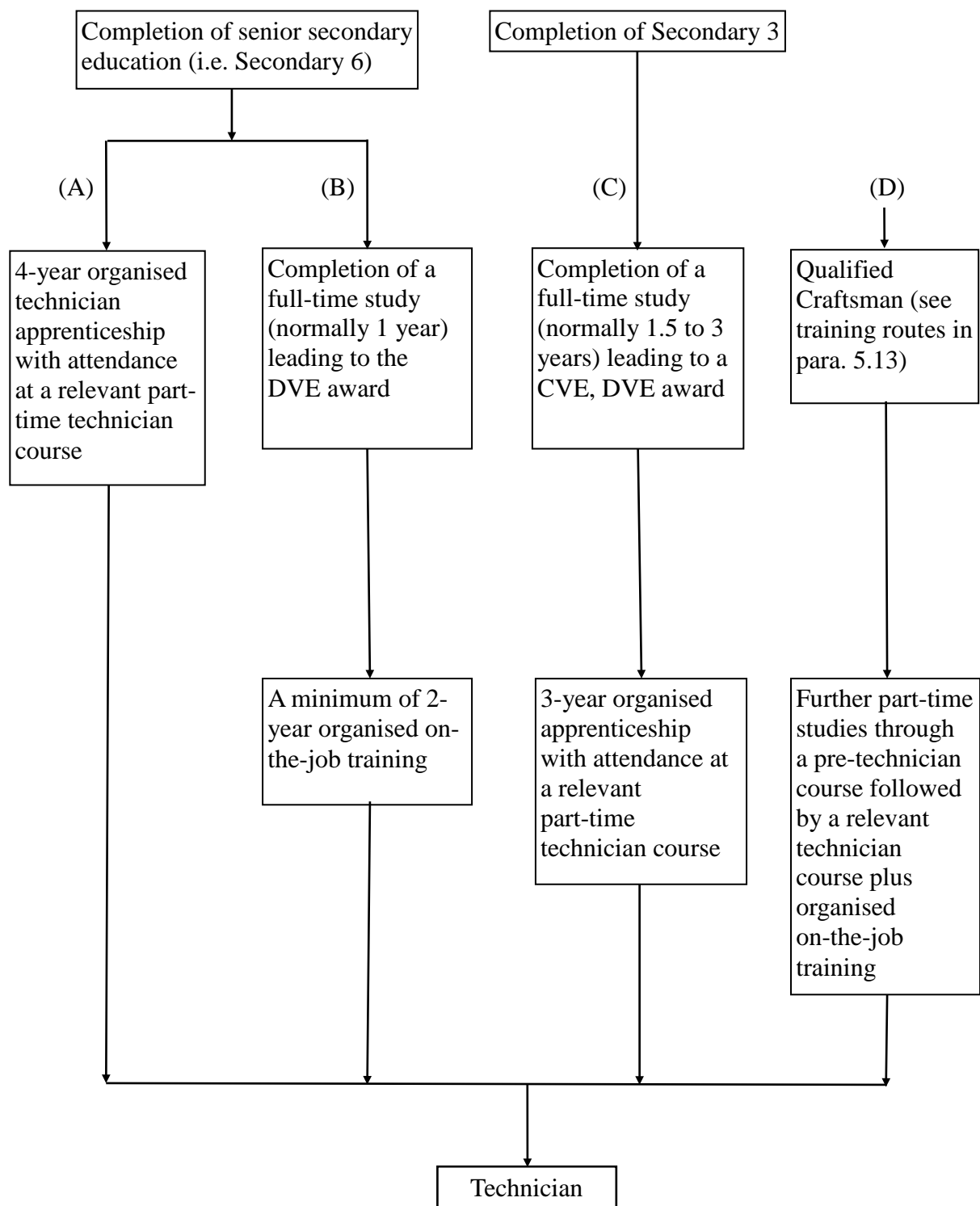
Engineering Graduate Training Scheme

5.10 To bring about more well-structured practical training opportunities in local industries for engineering graduates, the Innovation and Technology Training Board of the VTC 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 (TTU) of the VTC operates a free placement service to help employers recruit graduates and graduates obtain training opportunities. The TTU 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 TTU.

Training of Technicians/Supervisors

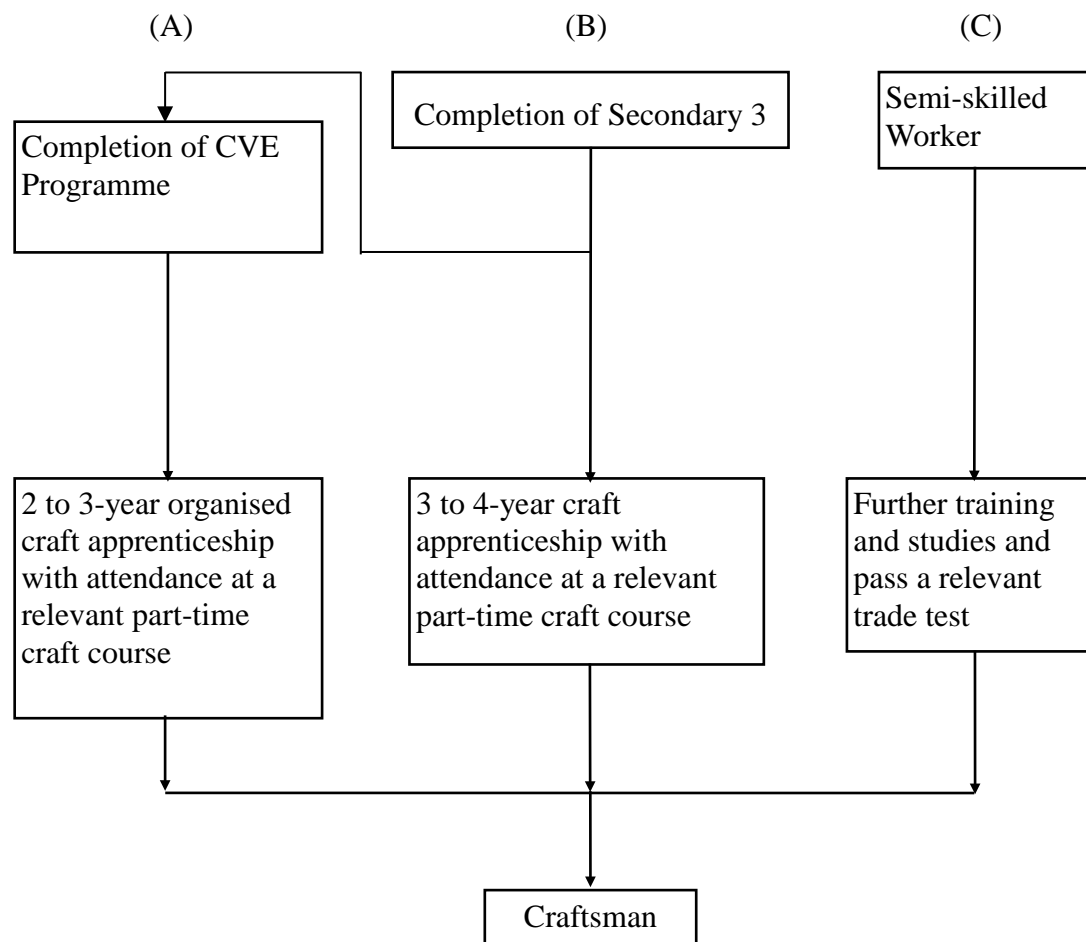
5.11 A technician is a person whose education, practical training and experience enable him/her to apply proven techniques and procedures to carry out technical tasks under the supervision of a technologist. The four normal routes for training technicians are outlined in the diagram of the next page.

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



Training of Craftsmen

5.13 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:



5.14 The Training Board recommends route (A) not only because the training period is shorter but also because holders of the CVE 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.

Technical Education and Training Institutions

5.15 A wide range of full-time, part-time day and part-time evening training courses relevant to the manufacturing technology 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 (Mechanical) and (Precision Engineering) of the VTC. 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.

5.16 To cope with the developing needs of the manufacturing technology 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.

Training and Development Centre of the VTC

5.17 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 (Mechanical) and (Precision Engineering). Located at the VTC Kowloon Bay Complex, the Pro-Act Training and Development Centres and the Youth College offer the following course for generating new-entrants for the industry:

Course Title	Level	Duration
DVE - Mechanical Engineering	Technician	1 to 3 years

5.18 Apart from the above full-time course, the Pro-Act Training and Development Centres also offer a wide range of full-time, part-time day release and part-time evening training courses for in-service workers of the 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 CAD/CAM/CAE, precision machining, 3D printing & rapid prototyping, reversed engineering, plastic injection moulding technology, metals technology, mechanical fitting and installation, automation engineering, and quality inspection.

5.19 In response to the training needs of the Small and Medium Enterprises (SMEs) of the plastics industry, the Pro-Act Training and Development Centres 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

software effectively. Trainees on the programme will receive practical training both at the Pro-Act Training and Development Centres and at the employers' workplace.

5.20 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 VTC

5.21 The VTC 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. The Training Board has been conducting trade tests for Mechanical Fitter, Certified Plastics Technician (Product Design), and Injection Moulding Machine Setter.
- (iv) The **Reindustrialisation and Technology Training Programme** is a funding scheme under the Innovation and Technology Fund which subsidises local company on a 2:1 matching basis to train their staff in advanced technologies, especially those related to "Industry 4.0".

5.22 The Training Board recommends employers to contact the VTC for assistance in setting up training schemes and recruiting trainees.

Training Programmes in Pearl River Delta

5.23 With most of the production facilities located at PRD, the manufacturing technology industry is employing a workforce of about 450 000 Mainland workers. Among them, about 28 000 are engineers. At the same time, employers are also posting some 430 technologists and 500 technicians to their operations outside Hong Kong for more than 6

months in a year as detailed in paragraph 3.12. These figures indicate that there is a huge demand for training for both Hong Kong and Mainland workers in the PRD region. The IVE and Pro-Act Training and Development Centres have offered training programmes especially in areas relating to the mechanical and automation engineering, plastics injection moulding technology, CNC machining and CAD/CAM technologies, plastics materials knowledge and engineering drawing standards 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.

報告摘要

I. 報告摘要

背景

1.1 製造科技業人力調查的主要目的是蒐集業內最新的人力資訊，以便評估人
力和培訓需求。

1.2 本報告書載有 2018 年 7 月至 9 月期間製造科技業的人力調查結果。

調查範圍

1.3 調查覆蓋以下製造科技行業及門類：

A. 製造行業

金屬

- 門類 1： 食品、飲品及煙草製造業的廠房保養部門
- 門類 2： 基本金屬製造
- 門類 3： 金屬製品（機械及設備除外）及金屬玩具製造
- 門類 4： 機械設備製造
- 門類 5： 醫療設備製造
- 門類 6： 電器設備製造
- 門類 7： 機械及設備維修及安裝

塑膠

- 門類 11： 塑膠玩具製造
- 門類 12： 塑膠家庭用具製造
- 門類 13： 塑膠外殼及零件製造
- 門類 14： 塑膠袋製造（手袋除外）
- 門類 15： 其他塑膠產品製造

B. 貿易行業

金屬貿易

- 門類 8： 機械及設備批發及進出口

塑膠貿易

門類 16： 玩具進出口

門類 17： 塑膠製品進出口

C. 製造服務行業

門類 9： 與金屬業有關的工程服務，包括物料測試、冶金服務、生產工序開發／測試、生產線顧問／設計及品質控制服務

門類 10： 培訓與教育機構的相關部門及學系

門類 18： 主要塑膠原料供應商及塑膠產品設計公司

調查方法

1.4 是次調查選定 1 522 間機構為調查對象，其中 1 332 間以分層隨機抽樣方式選出，另外 190 間則為補充樣本。

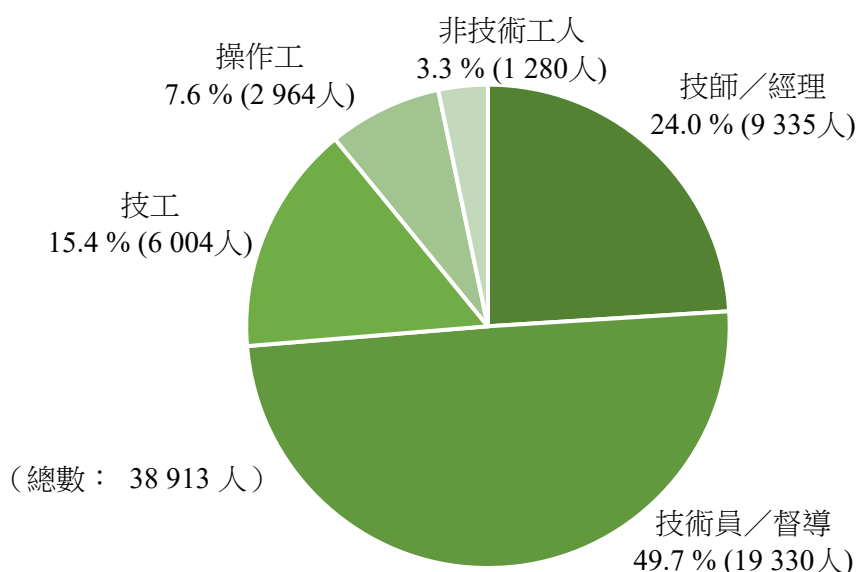
1.5 為確保調查順利進行並得出準確的調查結果，在調查的不同階段均採用嚴格的質素保證措施，包括為調查人員提供完備的訓練、由 VTC 專責小組審閱全套問卷、及以電腦程式核實蒐集所得數據等。

調查結果概要

A. 僱員人數

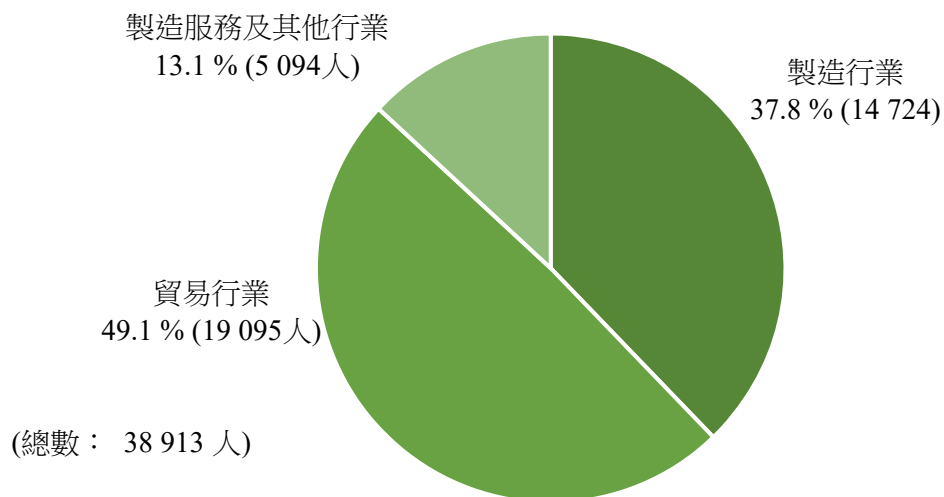
1.6 調查期間，製造科技業主要職務約有 38 913 名僱員，當中有 9 335 人(24.0%)屬技師／經理級；19 330 人(49.7%)屬技術員／督導級；6 004 人(15.4%)屬技工級；2 964 人(7.6%)屬操作工級；1 280 人(3.3%)屬非技術工人級。

圖 1.1 各技能等級僱員人數



1.7 貿易行業僱用約一半人力(49.1%)，其次為製造行業(37.8%)，製造服務及其他行業則佔 13.1%。

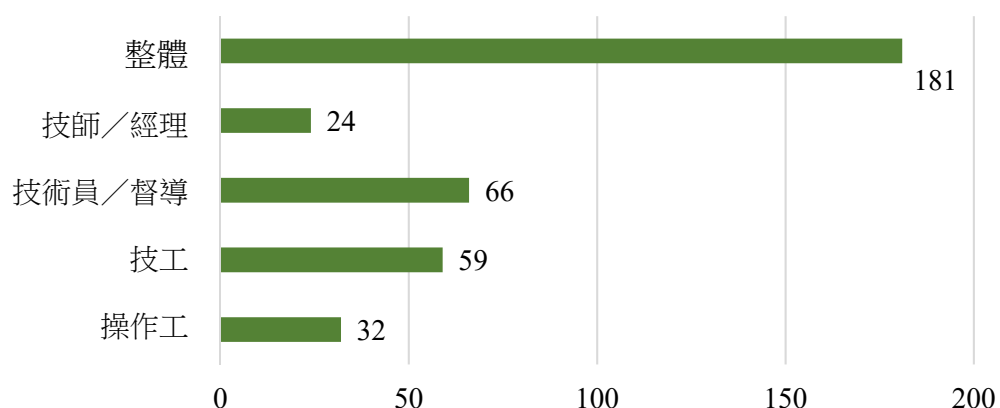
圖 1.2 各行業僱員人數



B. 受訓人數

1.8 調查期間，製造科技業有 181 名受訓者，佔人力總數（39 094，包括訓練名額）不足 1%。受訓者之中，24 人屬技師／經理級、66 人屬技術員／督導級、59 人屬技工級及 32 人屬操作工級。

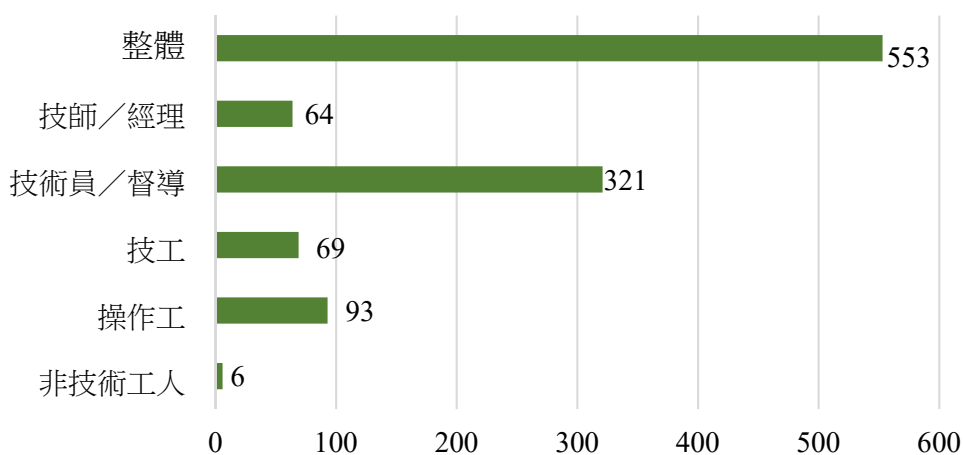
圖 1.3 各技能等級受訓者人數



C. 空缺額

1.9 調查期間，共有 553 個職位空缺，佔業內人力總數（39 466，包括空缺額）1.4%。其中，技術員／督導級空缺有 321 個、操作工級空缺有 93 個、技工級空缺有 69 個、技師／經理級空缺有 64 個及非技術工人級空缺有 6 個，各個技能等級的空缺比率介乎 0.5%至 3.0%。

圖 1.4 各技能等級空缺額



D. 人力需求

1.10 僱主預期一年後製造科技業整體人力需求大致相同（由 2018 年 39 466 人，至 2019 年 39 462 人）。換言之，僱主期望業內空缺能在 2019 年填補。

表 1.1 僱主預測 2019 年人力需求

僱員人數	空缺額	職位數目 (僱員人數及空缺額)	僱主預計 2019 年 7 月 僱員人數	僱主預測 2019 年 7 月 相對 2018 年之 人力變化
38 913	553	39 466	39 462	-4 (-0.01%)

E. 2019 年至 2022 年人力推算

1.11 本會考慮過是次及過往人力調查所收集數據、預計人力流失率、僱主預期業務狀況轉變的看法及其他影響業界因素等，採用調節過濾法(Adaptive Filtering Method) 預測 2019 年至 2022 年每年需要增加的人力如下：

表 1.2 預計 2019-2022 年每年新增人力需求

技能等級	預計每年新增人力需求
技師／經理	250 – 306
技術員／督導	600 – 734
技工	271 – 331

結論及建議

結論

1.12 與 2015/16 年時比較，製造科技業的人力在 2018 年略有下跌。僱員從 39 049 人減少到 38 913 人 (-136 人， -0.3%)。技師／經理級 (-207 人， -2.2%)、技工級 (-194 人， -3.1%) 以及非技術工人級 (-82 人， -6.0%) 人力均下跌。然而，技術員／督導級人力卻有所增長(+378 人， +2.0%)。

1.13 據本地大專院校及 VTC 所提供的資料，估計 2019 年及 2020 年將分別有 741 名及 560 名應屆畢業生具備製造科技業的技師／經理級資格，人力供應似乎足夠應付業內每年預計的 250 名至 306 名從業員的需求。然而，這些應屆畢業生卻可能任職其他行業，或者繼續升學。

1.14 在技術員／督導級層面，大多數的管工／監督是由經驗豐富的領班或技工擢升。製造科技業預計每年額外需求 600 名至 734 名具備機械／製造／工業工程背景的技术員。而 VTC 青年學院 2019 年及 2020 年技術員級課程的應屆畢業生卻只有 80 名及

65 名。應當留意的是，有些僱主會聘請高級文憑課程的應屆畢業生擔任技術員級職務。

建議

給僱主的建議

1.15 本會認為企業應加強培訓更多技術人才，以便在機械人技術、物料、研發、產品設計及創新、供應鏈管理等業務範疇應用頂尖科技，實現自動化製造甚至智能製造。配合物聯網和大數據的發展，建議僱主投放更多資源吸引及挽留熟練的人才，支持業務進一步增長。

1.16 為僱員提供清晰的晉升階梯和長線的事業發展機會，有利企業維持人力穩定。本會鼓勵僱主在公司內部訂立職業發展路徑，並提供合適的培訓機會，讓僱員掌握技術新知。

1.17 僱主亦可聯絡 VTC 協助籌辦公司內部的培訓計劃，以及善用 VTC 的培訓服務，如法定的學徒訓練計劃、工科畢業生訓練計劃、自願性質的技能測驗及證書計劃、再工業化及科技培訓計劃。

給僱員／培訓機構的建議

1.18 中國內地企業升級和發展軌迹驚人，香港公司在這個發展趨勢下亦朝着現代化的工業系統進發，加速邁向全球價值鏈的高端。本會建議業界僱員，尤其是年輕一代，應該加深認識中國內地的文化和市場。除了考取認可資歷，也要持續終身學習，尤其掌握有用的科技資訊。

1.19 對於各個職級的人力培訓，簡述建議如下：

(a) 技師／經理級人員的培訓：

- (i) 成為技師／經理級人員可循兩大途徑培訓，包括修畢相關的學士學位課程，其學歷獲認可專業學會豁免對企業會員資格的學術要求，或是在修畢相關的工程學科高級文憑課程後，透過足夠的在職培訓並累積相關工作經驗而達致技師／經理級人員資格。
- (ii) 本會積極推薦僱主參與工科畢業生訓練計劃。此計劃為畢業生提供適切的實務訓練，尤其是海外大學的畢業生，如其學位課程未能提供指定的實務訓練，這項計劃對他們尤其有幫助。VTC 的卓越培訓發展中心按照香港工程師學會的核准方案，可為他們提供八星期的基本工場培訓。

(b) 技術員／督導級人員的培訓：

- (i) 完成中三或高中教育的學生，或是在職人士，接受 VTC 的卓越培訓發展中心（機械業）和卓越培訓發展中心（精密工程業）及香港專業教育學院培訓後，便可成為技術員／督導級人員。
- (ii) 訓練課程涵蓋高級文憑、文憑及證書程度，有全日制、日間兼讀制、夜間兼讀制等修讀模式。

(c) 技工級人員的培訓：

- (i) 僱員可修讀 VTC 的職專證書課程，並在修業後參加為期 2 至 3 年有系統的技工學徒訓練，便可取得技工級人員資格。此培訓模式的培訓期較短，而且持有職專證書的學員已接受過基本技術訓練。因此，參加學徒計劃後，學員很快便能投入工作。

緒論

II. 緒論

背景

2.1 製造科技業訓練委員會（本會）隸屬職業訓練局(VTC)，按職權範圍負責確定業界的人力需求，並向 VTC 提供建議，配合需求發展培訓設施。本會成員由各大行業商會、職工會、專業團體、教育與培訓機構及政府部門提名出任；名單及職權範圍分別載於附錄 1 及 3。

2.2 本會依據職權範圍，於 2018 年 7 月至 9 月期間進行製造科技業人力調查，蒐集最新人力資料，評估業內的人力及培訓需求。本報告載述 2018 年人力調查所得結果。

調查目的

2.3 進行人力調查，目的在蒐集製造科技業的最新人力資料，具體包括以下幾方面：

- (a) 蒐集製造科技業相關行業範疇內主要職務的最新人力資訊；
- (b) 評估技術人力架構；
- (c) 預測未來短期的培訓需求；以及
- (d) 向 VTC 提出制訂培訓策略的建議，以配合需求。

調查範圍

2.4 VTC 於 2017 年重組各個訓練委員會，將前身為金屬業及塑膠業的兩個訓練委員會合併為製造科技業訓練委員會，原歸入金屬業的珠寶及鐘錶業範疇則獨立成會。

2.5 調查覆蓋以下製造科技行業及門類：

A. 製造行業

金屬：

- 門類 1：食品、飲品及煙草製造業的廠房保養部門 (HSIC 101-108, 110, 120)
- 門類 2：基本金屬製造 (HSIC 241-243)
- 門類 3：金屬製品（機械及設備除外）及金屬玩具製造 (HSIC 251, 259, 3244)
- 門類 4：機械設備製造 (HSIC 281-282)
- 門類 5：醫療設備製造 (HSIC 266, 2672, 3251, 3259)
- 門類 6：電器設備製造 (HSIC 271-275, 279)
- 門類 7：機械及設備維修及安裝 (HSIC 331-332)

塑膠：

- 門類 11：塑膠玩具製造 (HSIC 324300)
- 門類 12：塑膠家庭用具製造 (HSIC 222200)
- 門類 13：塑膠外殼及零件製造 (HSIC 222400)
- 門類 14：塑膠袋製造（手袋除外） (HSIC 222300)
- 門類 15：其他塑膠產品製造

B. 貿易行業

金屬貿易：

- 門類 8：機械及設備批發及進出口 (HSIC 451434, 451621, 451633, 451699, 451711, 452434, 452621, 452633, 452699, 452711, 460434, 460621, 460633, 460699, 460711)

塑膠貿易：

- 門類 16：玩具進出口 (HSIC 451444, 451445, 452444, 452445)
- 門類 17：塑膠製品進出口 (HSIC 451451, 452451)

C. 製造服務行業

- 門類 9： 與金屬業有關的工程服務，包括物料測試、冶金服務、生產工序開發／測試、生產線顧問／設計及品質控制服務 (HSIC 712, 719)
- 門類 10： 培訓與教育機構的相關部門及學系
- 門類 18： 主要塑膠原料供應商及塑膠產品設計公司

(HSIC 為「Hong Kong Standard Industrial Classification 香港標準行業分類」英文簡稱)

樣本設計

2.6 調查樣本由香港特區政府統計處及 VTC 共同設計，並由 VTC 負責選取樣本。為確保樣本具代表性，方便細項分析，共 1 522 間機構獲邀參與調查。其中 1 332 間取自「機構單位記錄庫」¹，由統計處使用分層隨機抽樣的科學統計方法得出（包括三個機構層級：行業、門類、僱員數目）；其餘 190 間機構（補充抽樣）則由本會建議納入，這些都是從事其他業務而聘用了製造科技員工的大公司，包括培訓與教育機構的相關部門／學系、主要塑膠原料供應商及塑膠產品設計公司。

問卷設計

2.7 本會使用問卷系統蒐集數據。所採用的問卷分為兩部分，第一部分按職級及主要職務蒐集人力資料（僱員人數、空缺額及受訓人數等），第二部分蒐集人力補充資料。

2.8 本報告書載有調查問卷樣本、附註及主要職務工作說明，見附錄 4A、4B 及 4C。

¹統計處的「機構單位記錄庫」是一套電子資料庫，包含大約 40 萬間在港活躍從事業務的公司。記錄庫內的資料透過統計處不同調查及相關政府部門各項行政紀錄收集所得，每季更新。

數據蒐集方法

2.9 整套調查文件（包括邀請信、調查問卷、附註、主要職務工作說明）以郵寄／電郵方式或親自送予每間獲邀機構，並籲請機構負責人提供在統計日期內的人力情況資料。

2.10 製造科技業職務分為以下五個職級，以便分析人力資料：

- (i) 技師／經理級；
- (ii) 技術員／督導級；
- (iii) 技工級；
- (iv) 操作工級；以及
- (v) 非技術工人級。

2.11 本會編製了一份「主要職務工作說明」，詳述每個職務的工作。由於各機構所採用的職稱與主要職務的內容未盡相同，僱主需參考問卷夾附的工作說明，然後再為其機構的主要職務填報人力資料。

2.12 調查期間，統計員會致電或造訪個別機構，協助機構人員填妥問卷，又或收集填妥的問卷。

質素管理措施

2.13 本會採取各種措施以確保調查蒐集數據的質素，包括調查前的準備、為調查人員提供充足培訓、監察調查進度、以不同的措施提高回應率，核對填妥的問卷、雙重輸入資料以求準確、驗證所蒐集的數據等。質素管理措施詳載於附錄6。

調查期及統計結果

2.14 是次人力調查於2018年7月至9月期間蒐集數據。在1522間樣本機構中，共有997間順利集得統計資料，另有98間不允提供資料，有效回應率為91%²。本會觀察到以下幾點：(i) 各門類的回應率令人滿意；(ii) 公眾熟識和具規模的機構大多回應了調查；(iii) 從樣本機構調查所得的結果可運用統計學方法倍大。本會總結認為，本報告書所載的調查結果足以反映本業的人力情況，而個別行業所得的回應率亦能夠提供有意

² 其餘個案視為無效，包括機構暫停經營、不再從事製造科技業等。

義的細項分析（見表2.1）。

表2.1 各機構統計數目（按行業劃分）

行業/ 門類	樣本機構數目	有效個案	集得統計資料機構數目	回應率
A. 製造行業				
門類1：食品、飲品及煙草製造業的廠房保養部門	100	56	46	82%
門類2：基本金屬製造	25	20	20	100%
門類3：金屬製造	100	76	66	87%
門類4：機械設備製造	60	33	31	94%
門類5：醫療設備製造	26	23	20	87%
門類6：電器設備製造	46	36	32	89%
門類7：機械及設備維修及安裝	81	43	37	86%
門類11：塑膠玩具製造	20	14	14	100%
門類12：塑膠家庭用具製造	9	7	7	100%
門類13：塑膠外殼及零件製造	19	13	12	92%
門類14：塑膠袋製造（手袋除外）	57	43	43	100%
門類15：其他塑膠產品製造	61	44	43	98%
B. 貿易行業				
門類8：機械及設備批發及進出口	171	106	101	95%
門類16：玩具進出口	217	171	150	88%
門類17：塑膠製品進出口	249	215	205	95%
C. 製造服務行業				
門類9：與金屬業有關的工程服務，包括物料測試、冶金服務、生產工序開發／測試、生產線顧問／設計及品質控制服務	109	68	60	88%

行業/ 門類	樣本機構 數目	有效 個案	集得統計資料 機構數目	回應率
門類10：培訓與教育機構的相關部門及學系	15	5	5	100%
門類18：主要塑膠原料供應商及塑膠產品設計公司	157	122	105	86%
總數	1 522	1 095	997	91%

調査結果

III. 調查結果

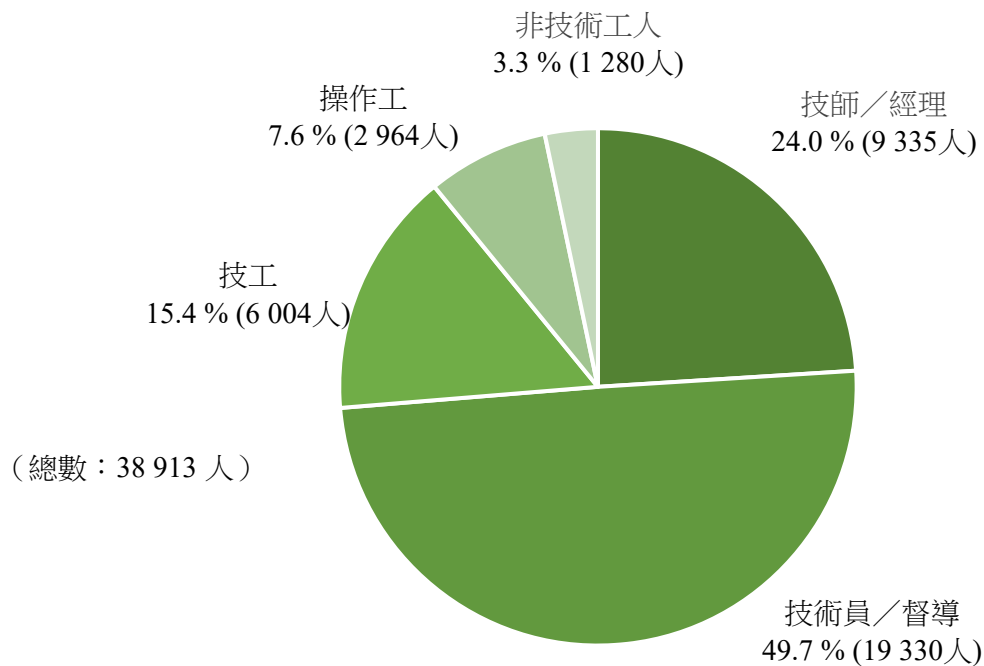
A. 僱員人數

3.1 調查期間，製造科技業的主要職務約有 38 913 名僱員，當中有 9 335 人 (24.0%)屬技師／經理級；19 330 人(49.7%)屬技術員／督導級；6 004 人(15.4%)屬技工級；2 964 人(7.6%)屬操作工級及 1 280 人(3.3%)屬非技術工人級（表 3.1；圖 3.1）。

表 3.1 各技能等級僱員人數

技能等級	僱員人數	佔僱員總數百分比
技師／經理	9 335	24.0%
技術員／督導	19 330	49.7%
技工	6 004	15.4%
操作工	2 964	7.6%
非技術工人	1 280	3.3%
整體	38 913	100.0%

圖 3.1 各技能等級僱員人數



3.2 貿易行業僱用約一半人力(49.1%)，其次為製造行業(37.8%)，製造服務及其他行業分別佔 9.8%及 3.3% (表 3.2；圖 3.2)。

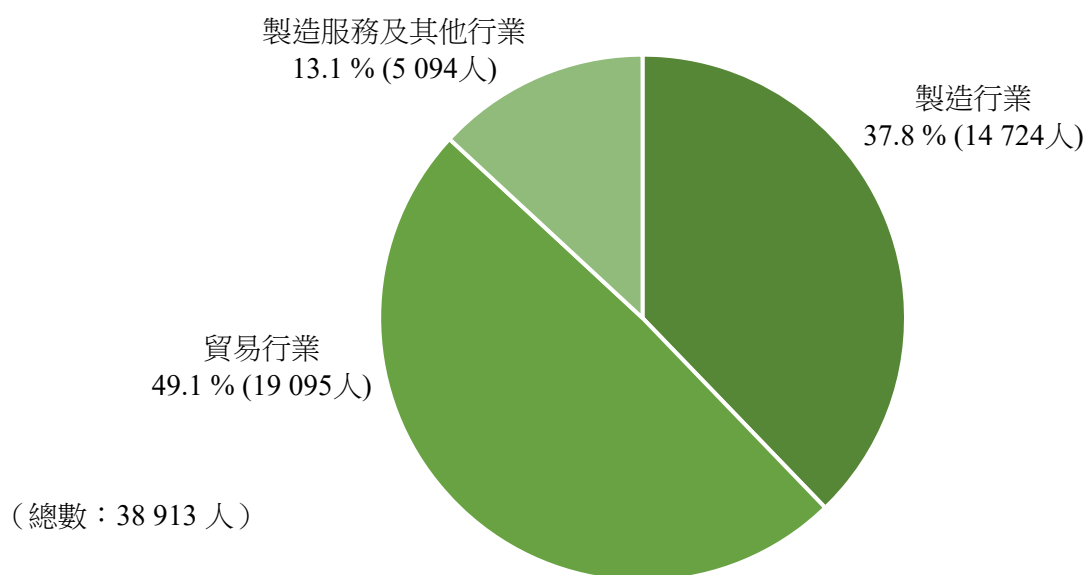
表 3.2 各行業不同技能等級僱員人數

技能等級	整體	行業		
		製造	貿易	製造服務及其他
技師／經理	9 335 100%	1 810 19.4%	5 637 60.4%	1 888 20.2%
技術員／督導	19 330 100%	4 722 24.4%	12 127 62.7%	2 481 12.8%
技工	6 004 100%	4 912 81.8%	755 12.6%	337 5.6%
操作工	2 964 100%	2 566 86.6%	135 4.6%	263 8.9%
非技術工人	1 280 100%	714 55.8%	441 34.5%	125 9.8%
整體	38 913 100%	14 724 37.8%	19 095 49.1%	5 094 13.1%

註：(1) 百分比按個別技能等級僱員總數而計算所得。

(2) 由於四捨五入關係，所得總和未必等於總數。

圖3.2 各行業類別僱員人數



3.3 2018 年佔相當人力比重的主要職務載於表 3.3。

表 3.3 主要職務工作的僱員人數

排名	主要職務	僱員人數	佔僱員總數百分比
1.	採購員	5 791	14.9%
2.	技術營銷／市務主任	3 131	8.0%
3.	機械工程技術員	2 773	7.1%
4.	機械打磨裝配工	2 364	6.1%
5.	技術營銷／市務／市場經理	1 549	4.0%
6.	技術支援工程師	1 405	3.6%
7.	支援技術員	1 243	3.2%
8.	物流主任	1 148	3.0%
9.	採購經理	1 137	2.9%
	上述職位佔人力百分比		53%

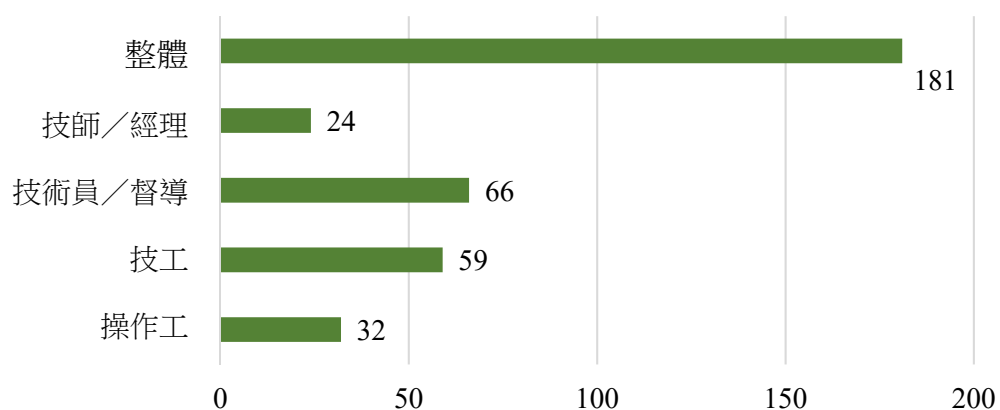
B. 受訓人數

3.4 調查期間，製造科技業有 181 名受訓者，佔人力總數（39 094，包括訓練名額）不足 1%。大多數受訓者屬技術員／督導及技工級（表 3.4；圖 3.3）。

表 3.4 各技能等級受訓者人數分布情況

技能等級	受訓者人數	佔相同技能等級人力總數百分比
技師／經理	24	0.3%
技術員／督導	66	0.3%
技工	59	1%
操作工	32	1.1%
整體	181	0.5%

圖 3.3 各技能等級受訓者人數



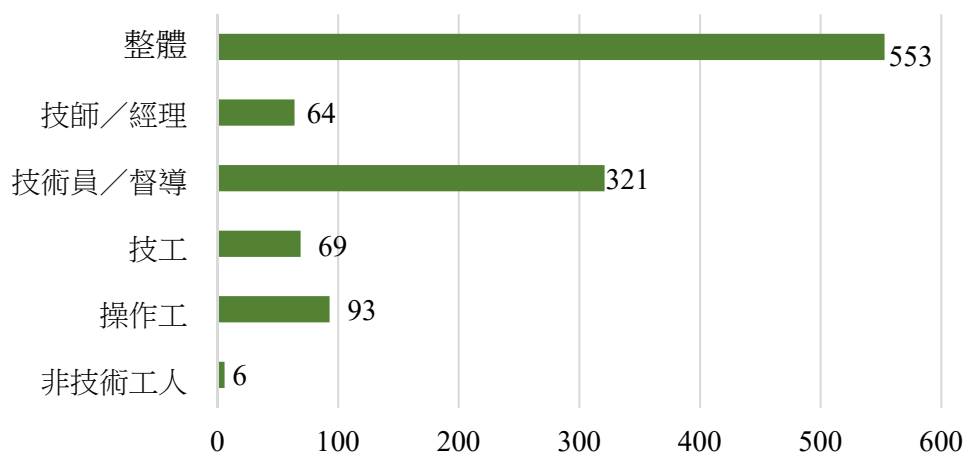
C. 空缺額

3.5 調查期間，共有 553 個職位空缺，佔業內人力總數（39 466，包括空缺額）1.4%。各個技能等級的空缺所佔同級人力總數的百分比介乎 0.5%至 3.0%（表 3.5；圖 3.4）。

表 3.5 各技能等級空缺分布情況

技能等級	空缺額	佔相同技能等級 人力總數百分比
技師/經理	64	0.7%
技術員/督導	321	1.6%
技工	69	1.1%
操作工	93	3.0%
非技術工人	6	0.5%
整體	553	1.4%

圖 3.4 各技能等級空缺額



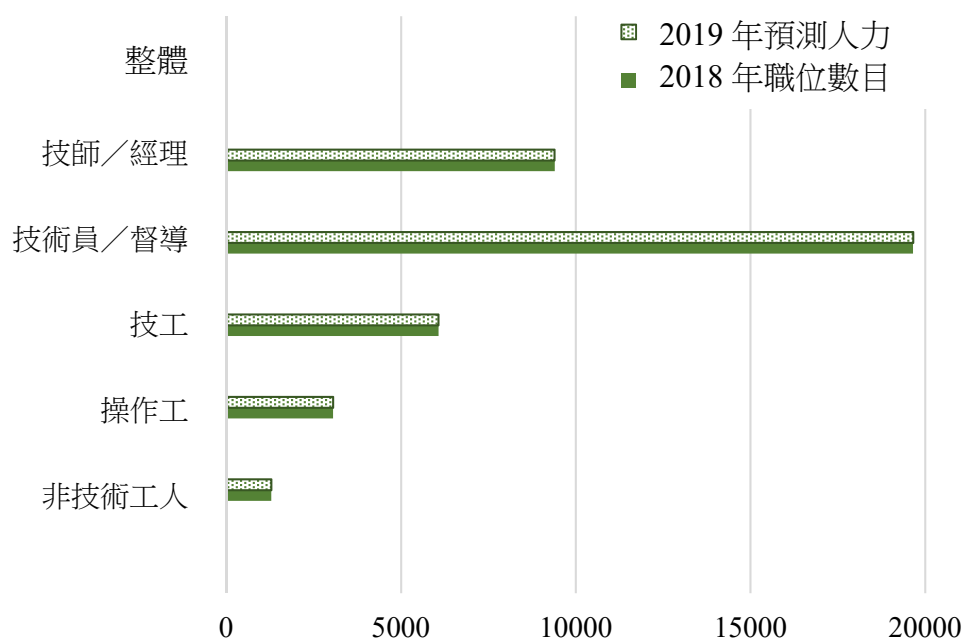
D. 人力需求

3.6 僱主預期一年後製造科技業整體人力需求大致相同（由 2018 年 39 466 人至 2019 年 39 462 人）。換言之，僱主期望業內空缺能在 2019 年填補（表 3.6；圖 3.5）。

表 3.6 2018 年人力情況與僱主預測 2019 年人力需求

技能等級	2018 年 7 月 1 日 僱員人數 (a)	2018 年 7 月 1 日 空缺額 (b)	2018 年 7 月 1 日 職位數目 (僱員人數及 空缺額) (a)+(b)	僱主預計 2019 年 7 月 僱員人數 (c)	僱主預測 2019 年 7 月 相對 2018 年之 人力變化
技師/經理	9 335	64	9 399	9 393	-6 (-0.1%)
技術員/督導	19 330	321	19 651	19 655	4 (+0.02%)
技工	6 004	69	6 073	6 071	-2 (-0.03%)
操作工	2 964	93	3 057	3 057	0 (0%)
非技術工人	1 280	6	1 286	1 286	0 (0%)
整體	38 913	553	39 466	39 462	-4 (-0.01%)

圖 3.5 2018 年人力情況與僱主預測 2019 年人力



E. 僱員平均月薪幅度

3.7 整體而言，僱員的平均月薪幅度集中於 \$15,000 至 \$30,000 中間水平，佔僱員總數 79.8%。而平均月薪幅度一如所料，僱員技能等級越高，平均月薪幅度亦普遍提升（表 3.7）。

表 3.7 各技能等級平均每月收入分布情況

技能等級	\$10,000 或以下	\$10,001 - \$15,000	\$15,001 - \$20,000	\$20,001 - \$25,000	\$25,001 - \$30,000	\$30,001 - \$40,000	\$40,000 以上
技師／經理	-	0.1%	4.1%	21.1%	40%	27.9%	6.8%
技術員／督導	*	7.2%	44.2%	43.2%	4.3%	0.7%	0.4%
技工	-	13.1%	61.4%	25.5%	-	-	-
操作工	2.6%	34.1%	61.9%	1.2%	0.2%	-	-
非技術工人	12.6%	81.8%	5.5%	-	-	-	-
整體	0.6%	11.1%	37.7%	30.7%	11.4%	6.8%	1.7%

註：(1) * 少於0.05%。

(2) 由於四捨五入關係，所得總和未必等於總數。

F. 僱員宜有教育程度、訓練方式及訓練期

3.8 根據僱主意見，超過四分之三技師／經理級職位（76.6%）要求僱員持有學士或以上學歷；逾一半技術員／督導級職位（57.9%）要求僱員持有副學位或文憑／證書學歷。至於技工級，42.1%職位要求僱員持有文憑／證書學歷，44.6%職位則要求他們具中四至中七學歷（表3.8）。

表 3.8 各技能等級僱員宜有教育程度

技能等級	研究生學位	學士學位	高級文憑／副學位	文憑／證書	中四至中七	中三或以下
技師／經理	12.8%	63.8%	19.6%	3.3%	0.5%	-
技術員／督導	0.1%	17.7%	39.1%	18.8%	24.3%	-
技工	-	-	-	42.1%	44.6%	13.3%

3.9 在職訓練是大多數僱主屬意的訓練方式（表3.9）。

表 3.9 各技能等級僱員宜有訓練方式

技能等級	在職訓練	工科畢業生訓練	學徒訓練
技師／經理	93.4%	6.6%	-
技術員／督導	99.7%	0.3%	0.1%
技工	90.1%	-	9.9%

註：由於四捨五入關係，所得總和未必等於總數。

3.10 僱主認為，43.1%技師／經理級僱員宜接受兩至三年培訓；而大部分技術員／督導級和技工級僱員宜接受一至兩年培訓（分別有47.1%和66.1%）。僱主對僱員宜有訓練期的意見載於表3.10。

表 3.10 各技能等級僱員宜接受之訓練期

技能等級	4 年或以上	3 年至 4 年以下	2 年至 3 年以下	1 年至 2 年以下	6 個月至 1 年以下
技師／經理	7.0%	24.5%	43.1%	25.3%	0.1%
技術員／督導	0.2%	3.4%	40.0%	47.1%	9.3%
技工	0.2%	6.6%	19.9%	66.1%	7.2%

G. 內部晉升

3.11 調查前 12 月，共 233 名僱員獲機構內部晉升，佔僱員總數 0.6% (表 3.11)。

表 3.11 機構內部晉升情況

內部晉升	僱員人數	佔晉升技能等級 僱員總數百分比
技術員／督導晉升為技師／經理	84	0.9%
技工晉升為技術員／督導	68	0.4%
操作工／非技術工人晉升為技工	81	1.3%
總數	233	0.6%

H. 港外任職的香港技術員工

3.12 僱主報稱，過去 12 個月共調派 997 名僱員 (佔僱員總數 2.6%) 往香港境外任職超過六個月，當中 438 人屬技師／經理級；536 人屬技術員／督導級及 23 人屬技工級 (表 3.12)。這類僱員亦可能包括在中港兩地頻繁往來，而逾半時間在內地工作的員工。

表 3.12 過去 12 個月港外任職的香港技術僱員人數和百分比

技能等級	僱員人數	佔僱員總數百分比
技師／經理	438	4.7%
技術員／督導	536	2.8%
技工	23	0.4%

I. 中國內地經營製造科技業相關業務

3.13 調查期間，本港僱主共僱用 448 841 名內地員工處理中國內地公司的業務。當中，28 262 人為內地工程師／技師。僱主亦預測，2019 年內地公司將共有 28 310 名技師（表 3.13）。

表 3.13 中國內地業務僱用內地員工／技師人數

員工總數	448 841
技師／工程師人數	28 262
僱主預計 2019 年 7 月技師人數	28 310

J. 僱主預期業務變化

3.14 大多數製造科技業僱主預測未來一年至三年的業務狀況不變，分別有 93.9% 及 95.1% 僱主持這種看法。僱主意見載於表 3.14。

表 3.14 僱主預測業務變化

	較佳	不變	較差
未來一年	0.7%	93.9%	5.5%
未來三年	0.5%	95.1%	4.4%

註：由於四捨五入關係，所得總和未必等於總數。

3.15 調查期間，只有少數僱主預期業務狀況會變差，主要因為「營商環境欠佳／業務規模／營業額收縮」及「經濟欠佳」（表 3.15）。

表 3.15 預期未來一年／三年業務狀況變差的原因

	未來一年	未來三年
營商環境欠佳／業務規模或營業額收縮	31.3%	38.3%
經濟欠佳	23.9%	29.4%
中美貿易戰	17.4%	1.4%
行業／廠房遷往中國內地	7.7%	9.6%
難以聘請員工／專業人士	7.1%	8.6%
成本上升	3.5%	3.3%
業務受網上貿易影響	3.1%	0.5%
競爭激烈	0.8%	1.2%
其他	1.7%	1.9%

註：按預期未來一年及三年業務狀況變差的518間及418間公司而計算百分比。

觀察與結論

IV. 觀察與結論

綜論

4.1 本會已經仔細審視調查結果，認為所收集的數據反映了調查期間製造科技業的實際就業情況。

A. 人力變化

僱員人數

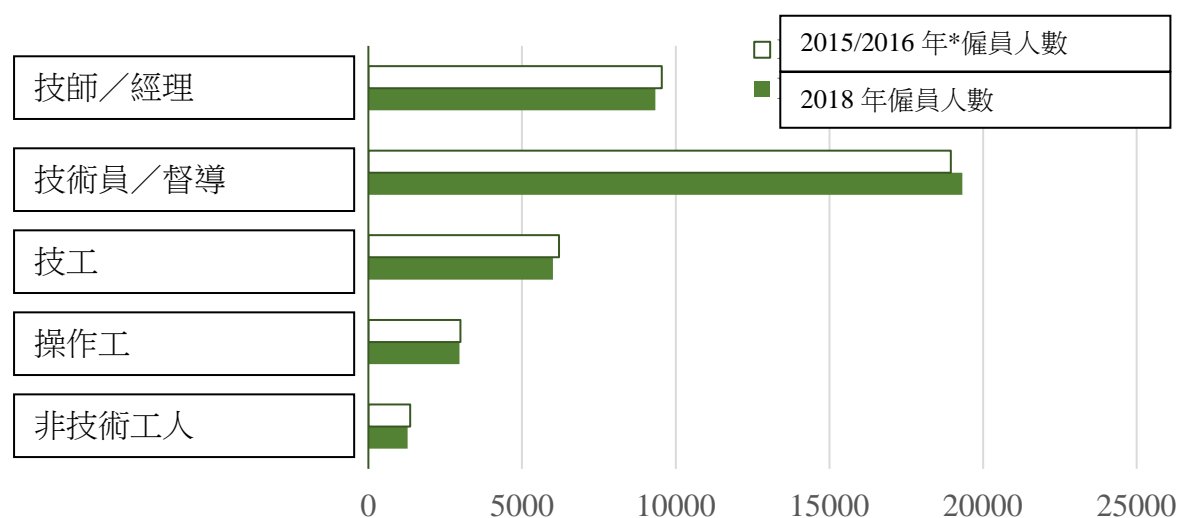
4.2 製造科技業各職級相對於上一輪調查的人力變化詳見表 4.1 及圖 4.1。

表 4.1 是次及上一輪調查的僱員人數（按技能等級分類）

技能等級	是次調查	上一輪調查*	增加／減少	% 變幅
技師／經理	9 335	9 542	-207	-2.2%
技術員／督導	19 330	18 952	+378	+2.0%
技工	6 004	6 198	-194	-3.1%
操作工	2 964	2 995	-31	-1.0%
非技術工人	1 280	1 362	-82	-6.0%
整體	38 913	39 049	-136	-0.3%

* 上一輪調查的數據取自 2016 年金屬業人力調查及 2015 年塑膠業人力調查，但不包括鐘錶業及珠寶業的人力數據。

圖 4.1 2015/2016年* 及2018年的人力變化



4.3 與上一輪調查相比，製造科技業的人力略有下跌。僱員從39 049人減少到38 913人（-136人，-0.3%）。技師／經理級（-207人，-2.2%）、技工級（-194人，-3.1%）以及非技術工人級（-82人，-6.0%）人力下跌。然而，技術員／督導級人力卻有增長（+378人，+2.0%）。

受訓者人數

4.4 製造科技業各職級相對於上一輪調查的受訓者人數詳見表 4.2 及圖 4.2。

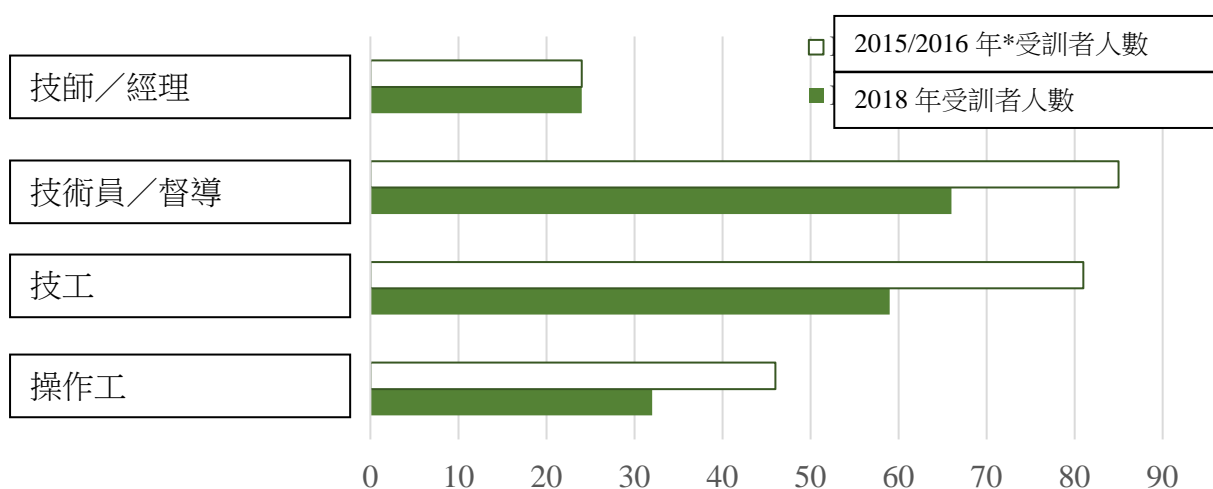
4.5 與僱員人力情況相似，製造科技業的受訓者人數較上一輪調查時下跌，而且幅度更大，有 23.3%，從 236 人減至 181 人。受訓者人數下跌主要見於技術員／督導級（-19 人，-22.4%）、技工級（-22 人，-27.2%）以及操作工級（-14 人，-30.4%）。

表 4.2 是次及上一輪調查的受訓者人數（按技能等級分類）

技能等級	是次調查	上一輪調查*	增加 / 減少	% 變幅
技師／經理	24	24	0	-
技術員／督導	66	85	-19	-22.4%
技工	59	81	-22	-27.2%
操作工	32	46	-14	-30.4%
非技術工人	0	0	0	-
整體	181	236	-55	-23.3%

*上一輪調查的數據取自 2016 年金屬業人力調查及 2015 年塑膠業人力調查，但不包括鐘錶業及珠寶業的人力數據。

圖 4.2 2015/2016 年*及 2018 年受訓者人數



空缺額

4.6 製造科技業各職級相對於上一輪調查時的空缺額詳見表 4.3 及圖 4.3。

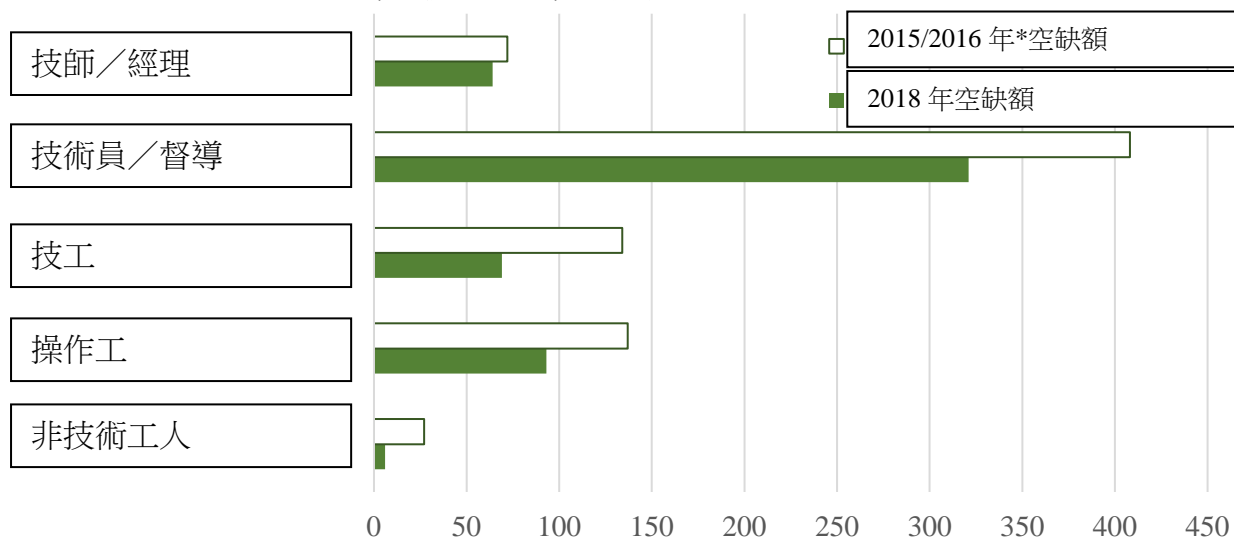
4.7 與受訓者人數情況相似，製造科技業的職位空缺大幅下跌 28.9%，由 778 個減至 553 個。主要原因是技術員／督導級（-87 人，-21.3%）、技工級（-65 人，-48.5%）、操作工級（-44 人，-32.1%）以及非技術工人級（-21 人，-77.8%）的空缺額減少。

表 4.3 是次及上一輪調查的職位空缺數目（按技能等級分類）

技能等級	是次調查	上一輪調查*	增加／減少	% 變幅
技師／經理	64	72	-8	-11.1%
技術員／督導	321	408	-87	-21.3%
技工	69	134	-65	-48.5%
操作工	93	137	-44	-32.1%
非技術工人	6	27	-21	-77.8%
整體	553	778	-225	-28.9%

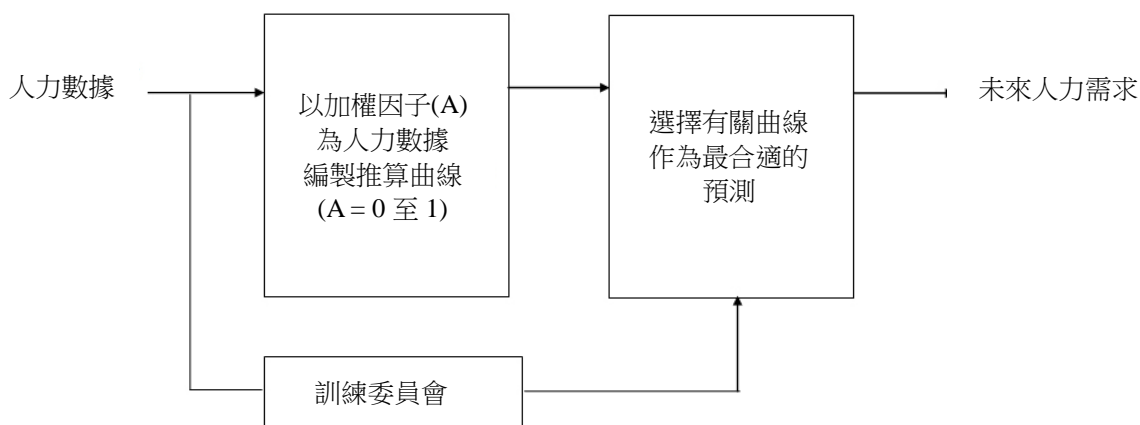
*上一輪調查的數據取自 2016 年金屬業人力調查及 2015 年塑膠業人力調查，但不包括鐘錶業及珠寶業的人力數據。

圖 4.3 2015/2016 年* 及 2018 年空缺額



B. 推算人力需求

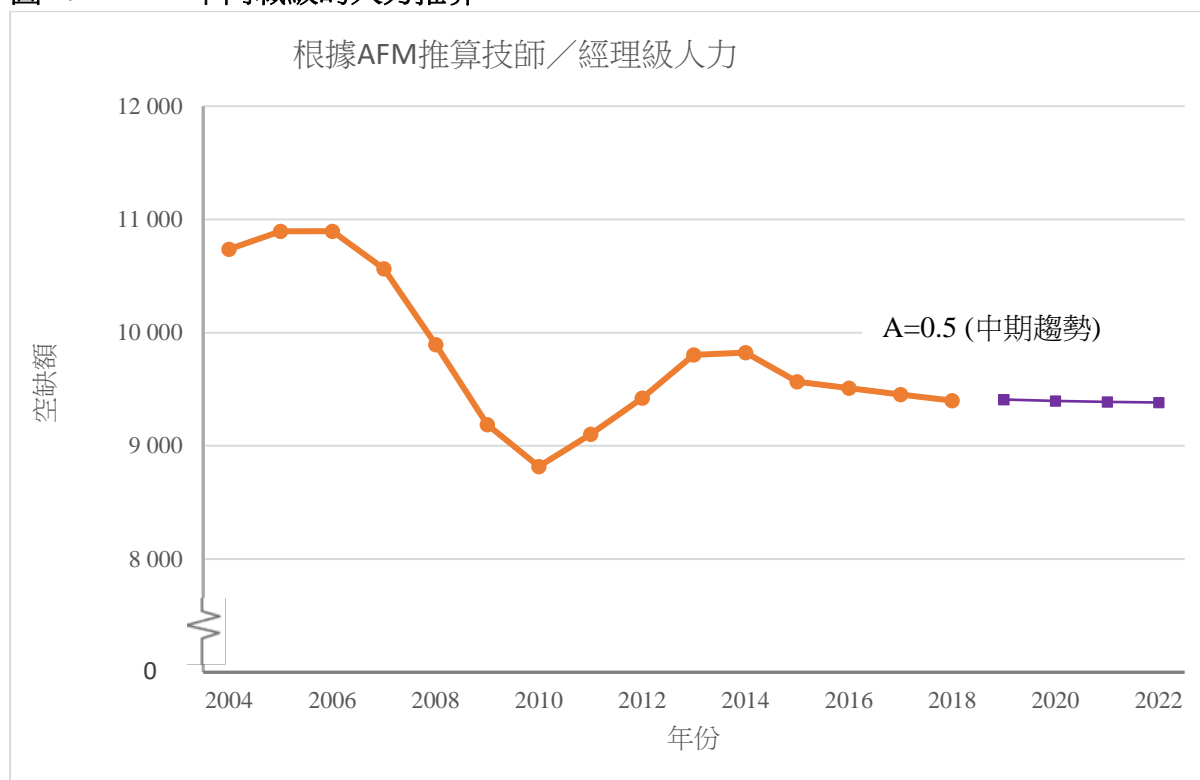
4.8 本會採用調節過濾方法(Adaptive Filtering Method, AFM)，對行業未來的人力需求編製一系列推算數據，以「曲線配適」作為趨勢分析。如下圖所示：

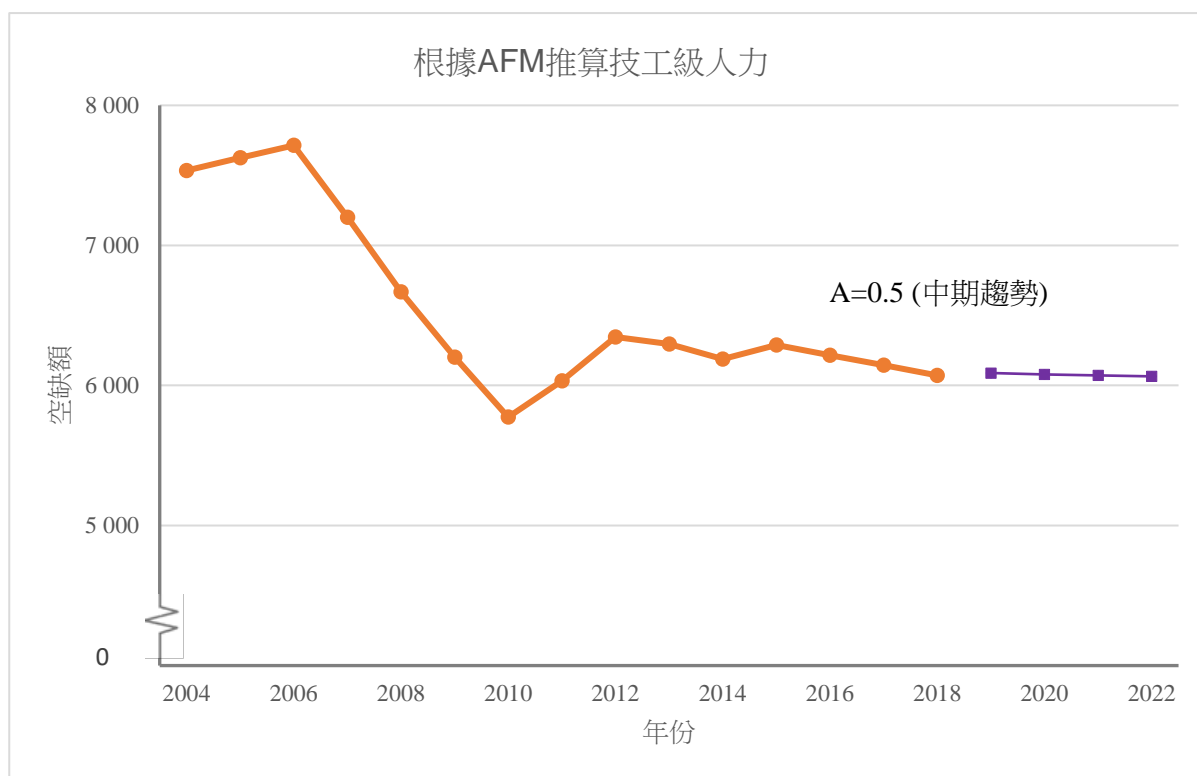
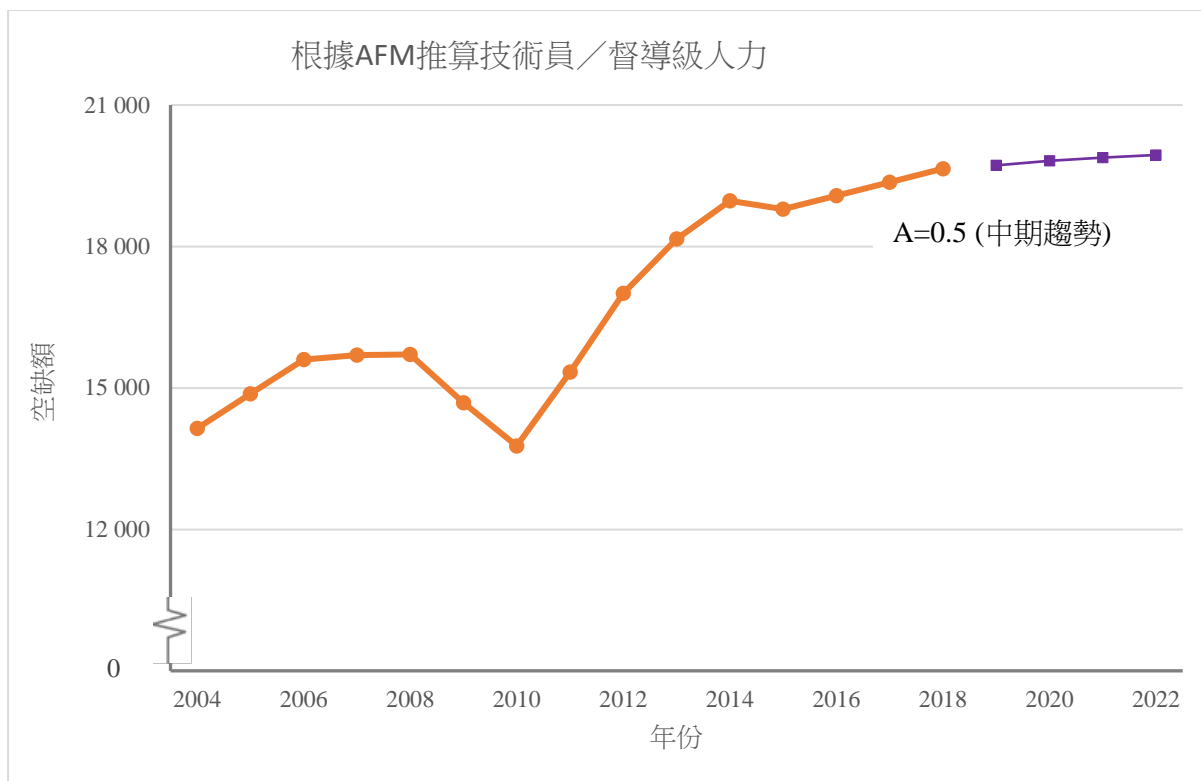


以往的調查數據經過加權處理，以加權因子(A)的數值決定應該側重長期趨勢抑或短期趨勢。(A)的數值越高，近期調查數據的加權越重（側重短期趨勢）。本會考慮市場趨勢、技術發展和社會經濟等其他因素，定出(A)的適當數值，從而推算有關職級的人力。

4.9 根據 2018 年及以往幾輪人力調查的結果，本會決定採用 AFM 中期趨勢曲線，推算 2019 年至 2022 年不同職級的人力。推算結果如圖 4.4 所示。

圖 4.4 不同職級的人力推算





4.10 本會亦估算了人力流失率。「人力流失」指僱員因退休、移民、轉行而離開該行業，包括技師／經理級、技術員／督導級，以及技工級流失的人力。人力推算所定出的流失率如下：技師／經理級和技術員／督導級的人力流失率為3%，而技工級為5%。

4.11 本會根據第4.9段和4.10段的決定，估計製造科技業為應付未來四年三個技能等級的增長和流失情況每年額外需求的人力，見下表4.4：

表4.4 預計2019–2022年每年新增人力需求

技能等級	預計每年新增人力需求
技師／經理	250 - 306
技術員／督導	600 - 734
技工	271 - 331

4.12 本會將於2022年展開新一輪人力調查，以更新人力統計數字及檢討業界的訓練需求。

人力需求和供應分析

4.13 在技師／經理級層面，估計每年額外需要250人至306人具備相關的行業背景。根據本地大專院校及VTC提供的資料，應屆畢業生的預計人數，包括機械／製造／工業工程學科的學士學位及高級文憑畢業生，總結於表4.5。據估計，2019年及2020年將分別有741名及560名應屆畢業生具備製造科技業的技師／經理級資格。值得注意的是，部分僱主傾向聘請高級文憑畢業生從事技術員的工作；然而，超過30%的高級文憑畢業生選擇繼續攻讀學士學位課程。實際加入技師／經理級行列的應屆畢業生，應少於表4.5中所示的數目。

**表 4.5 技師／經理級人力
機械／製造／工業工程學科應屆畢業生數目**

院校	學銜	預計畢業生人數	
		2019	2020
本地大學	學士學位	455	387
	高級文憑	32	32
香港專業教育學院	機械工程學高級文憑	230	130
	檢測及認證高級文憑	24	11

4.14 除了繼續進修或移民，上述應屆畢業生亦可以投身許多其他行業，如電子、電機和服務行業，因而未必加入製造科技業。為了吸引合適的畢業生入行，僱主應向年輕畢業生提供具吸引力的就業條件和行業前景，並相關的職內和職外培訓，以提升他們的技術知識和才幹，公司亦應提倡終身學習的文化。

4.15 在技術員／督導級層面，通常會擢升經驗豐富的領班或技工，擔任管工／監督職務，而電子／電機工程技術員，以及實驗室／物料技術員，則可從其他學科的畢業生中招聘。製造科技業每年額外需求具備機械／製造／工業工程背景的技术員預計為600人至734人。

4.16 機械／製造／工業工程學科的技术員畢業生數字乃來自 VTC 青年學院。2019 年和 2020 年分別約有 80 名和 65 名應屆技術員畢業生，可加入製造科技業，如表 4.6 所示。

**表 4.6 技術員／督導級人力
機械／製造／工業工程學科應屆畢業生數目**

院校	學銜	預計畢業生人數	
		2019	2020
青年學院	職專文憑（機械工程）	80	65

4.17 技術員課程的畢業生除了進修外，還可以投身其他相關行業，與技師課程畢業生的情況相似。本會敦促僱主提供良好的就業條件、事業前景、持續培訓和技能提升機會，吸引更多畢業生加入製造科技業。

4.18 在技工級層面，預計每年額外需要 271 名至 331 名從業員。

4.19 從 2009/2010 開始，VTC 轄下青年學院開辦職專文憑課程(Diploma of Vocational Education, DVE)，適合中三畢業生報讀。DVE 是一個靈活的學分制課程，為學生在就業或繼續進修做好準備。學生修畢指定的學分後，將獲頒職專證書(Certificate of Vocational Education, CVE)或職專文憑的學銜。持有 CVE 的人士可填補技工級的職位空缺。假設 2019 年及 2020 年錄取的 DVE 課程新生有部分人選擇以 CVE 學銜結業，如他們在一年半內修畢課程，則可在 2021 年及 2022 年加入製造科技業擔任技工級職位。供中三離校生報讀的機械／製造／工業工程相關職專文憑課程的計劃取錄人數見表 4.7。

**表 4.7 有關機械／製造／工業工程的 DVE 課程
計劃取錄人數 (供中三離校生報讀)**

院校	課程	計劃取錄人數	
		2019	2020
青年學院	職專文憑 (機械工程)	155	180

4.20 職專文憑 (機械工程) 的學生接受行業相關的通用技能訓練，其中部分人將投身機電／屋宇裝備行業。僱主應積極聘用這些學生，進一步向他們提供在職訓練，幫助他們成為合資格的技工。

業務展望

全球經濟

4.21 保護主義和本土主義抬頭，預期不利全球貿易，在未來的日子將有更多不穩定因素。即使中美貿易有機會達成初步協議，但要化解雙方之間的貿易矛盾，恐怕需要更長時間。持續不斷的中美貿易衝突將進一步削弱中國內地和香港的經濟，最終對製造科技業造成負面衝擊。

4.22 在其他發達國家之中，歐洲仍是製造科技業的傳統出口目的地之一。預計未來的整體經濟增長溫和，但仍存在不穩定因素。英國無論是以強硬抑或懷柔的方式脫離歐盟，都很可能打擊未來數年歐盟和英國的經濟。另一方面，香港製造商在品質和生產成本方面，面臨東歐企業的激烈競爭。東歐的競爭對手能更靈活地生產批量少的產品，滿足不同市場的需求。

中國內地

4.23 中國在第十三個「五年計劃」中，提出將傳統的製造業提升為高增值工業。2019年將是這個計劃實施的第四年。預計未來十年，香港製造商與內地製造商之間的競爭將會更加激烈。大多數香港製造商以珠江三角洲為基地，預計該區的迅速發展將進一步激化競爭。

4.24 粵港澳大灣區項目正式提升為第三個國家級的地區發展策略。這將為香港打開與大灣區其他城市合作的機會，共同為大灣區、內地和全球市場開發一個高科技產業鏈，目標是優化製造科技發展的框架，並加速邁向全球價值鏈的高端。

4.25 內地致力改善環境、減少污染和加強安全生產。政府當局採取更嚴格的方式實施新政策，特別是在進行檢查時，甚至合規的廠房運作亦要暫停。這種壓力，加上飆升的材料和工資等生產成本、勞動力短缺、以及《勞動法》等法規的改變，都是香港製造業所面臨的巨大挑戰。

香港

4.26 再工業化一直是製造科技業的熱門議題，亦是香港政府的優先議程項目。引進和開發適合香港的高端製造業，以及保留高增值的流程，有望為行業重新帶來增長動力。這將有助促進經濟增長，並為城市創造極好的就業機會。然而，有意回流香港經營的製造商，很難找到合適的空間和具備所需知識及經驗的年輕人才。

4.27 目前香港政府的政策是致力創新和發展高增值及多元化的經濟。政府期望製造科技業為香港的本地生產總值貢獻更多。在這方面，行政長官正透過再工業化的進程，推動高端製造業的發展。位於大埔工業邨的精密製造中心以及將軍澳工業邨的先進製造業中心將為業界提供智能生產設施。除了政府推出科技人才入境計劃等舉措外，相信製造科技業亦可以透過技術和創新帶來振興。

製造科技業

4.28 「工業4.0」被視為令製造業升級的革命，它將提高生產力和改寫工作模式。這意味著生產走向數碼化，並與機器、機械人和其他系統的製造業網絡融合。通過整合自動化、人工智能和物聯網，製造科技業正在轉型為智能生產，以提高生產效率和效能。在不久的將來，將有更多企業推出更多智能設備和應用「工業4.0」，提升產品質量和改善廠房營運。

4.29 今時今日的消費者喜好個人化的產品和服務，這種消費行為的劇變，令製造科技業再難維持低成本大規模生產的傳統做法。互聯網時代的消費者喜歡在網上購物，按本身口味選擇產品型號，甚至是自己設計的產品。製造商應採用最新的技術和設備，務求更靈活應對品種多但批量少的市場需求。

建議

V. 建議

概要

5.1 中國內地經濟改革始於40年前。由於內地生產成本較低，不少經營者選擇逐步將生產工序由香港遷至珠三角地區，並開設工廠。過去幾十年，包括模具、金屬和塑膠業在內的製造科技業，經歷了重大的轉型。雖然不少製造業活動已非在香港進行，但大部分訂單和銷售產品，都是通過香港辦事處進入全球市場。換言之，將低技術和勞力密集型活動轉移至珠三角地區，對香港有利，可以專注於高增值的業務活動，例如產品設計和發展、銷售和市場推廣、財務管理等。

5.2 近年，由於國際貿易不明朗，加上中國內地生產成本上升，香港僱主面對巨大挑戰。除了中美貿易糾紛外，內地日益嚴峻的商業環境，例如勞工短缺、環保規管收緊、物料成本上升，對香港企業造成更大的壓力，必須調整經營策略。事實上，香港公司正努力發展成熟和新興的海外市場，甚至開拓內地市場。另一方面，他們也更積極轉型和改進生產模式，以應對激烈的市場競爭和客戶的複雜要求。

5.3 這些策略成功與否，培訓高質素人才和技術人才是其中關鍵因素。本會認為，企業應加強培訓更多技術人才，邁向自動化甚至智能製造。先進製造工序涵蓋了機械人、物料、研發、產品設計和創新，以及供應鏈管理等尖端應用技術的領域，加上工業物聯網和大數據收集。本會建議製造科技業的僱主投放更多資源，吸引和挽留幹練人才，支持未來業務的進一步增長。因此，他們應為員工舉辦培訓或物色訓練資源，幫助員工掌握最新的技術知識和技能。能為員工提供清晰的發展路徑和長遠的職涯發展，也有利企業維持人力穩定。

5.4 藉著粵港澳大灣區的共榮發展，香港公司也致力於建立現代工業系統，加速邁向全球價值鏈的高端。在這種情況下，本會鼓勵尤其是年輕一代的僱員更深入了解中國內地的文化和市場。除了取得認可資格，還應抱着終身學習的態度，尤其熟習有用的技術資訊。

每年受訓人數

5.5 在調查時，有181人接受了各種形式的訓練。其中，技師／經理級佔24人，技術員級有66人，技工級有59人，而操作工級有32人。

5.6 根據所收集調查數據和調節過濾法(Adaptive Filtering Method, AFM)，本會建議整個製造科技業應開展一項規模如下表5.1所列的人力培訓計劃。

表5.1 建議未來四年（2019-2022）每年培訓人數

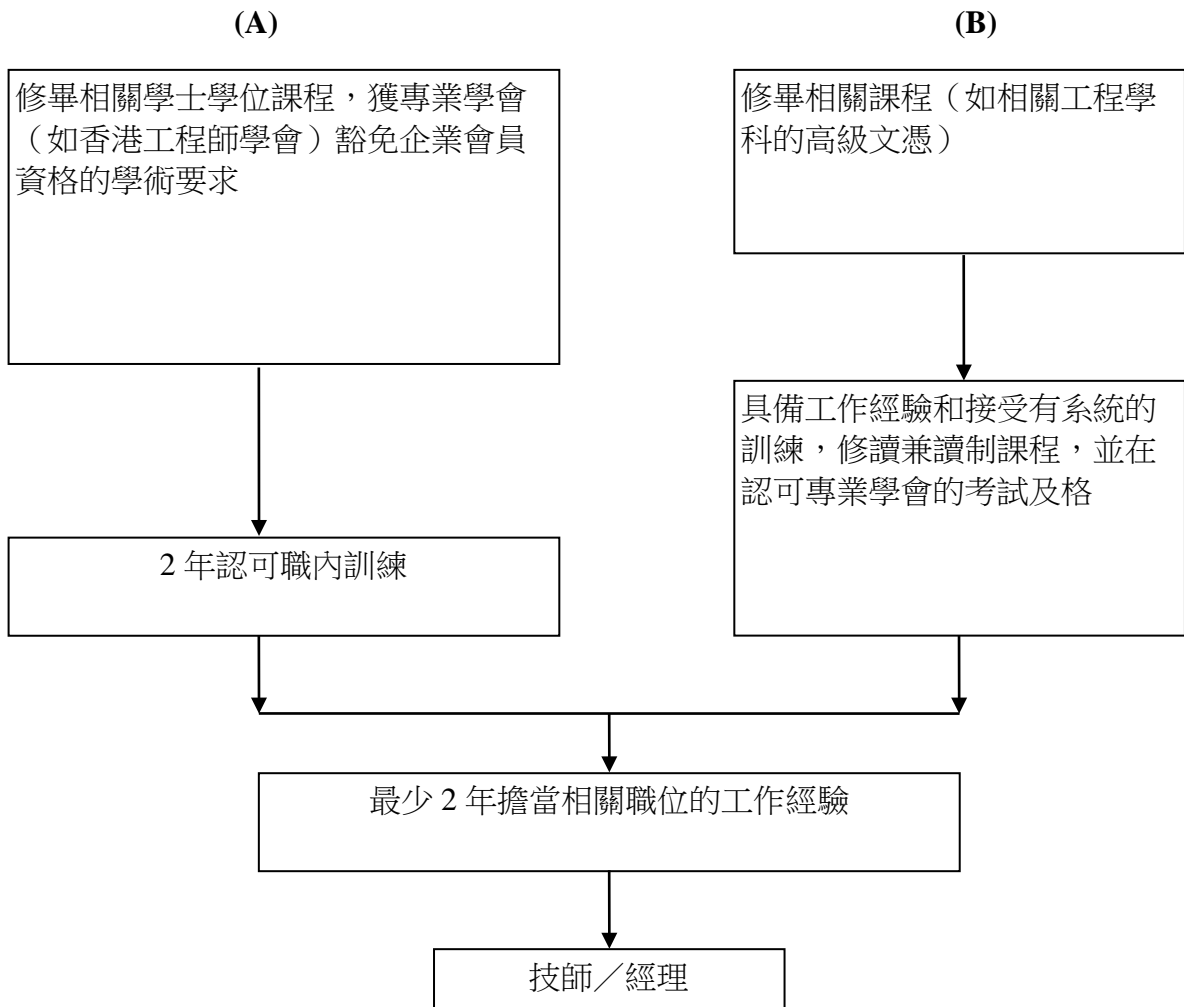
技能等級	建議每年培訓人數
技師／經理	250 - 306
技術員／督導	600 - 734
技工	271 - 331

5.7 僱主在策劃公司的人力資源時，需參考表5.1所列出的受訓者人數，平均每年分別佔目前技師／經理級人力的3.0%、技術員／督導級人力的3.5%，以及技工級人力的5.0%。

技師／經理級人員的培訓

5.8 「技師」須具備相當於有關專業學會企業會員所需的資歷及經驗，能夠運用知識和技能展開實務發展工作，並能分析和解決各種技術問題。此外，亦須主動負責發展和應用工程原理，具創見和判斷力，與專屬範疇的科技發展並進，應用現代管理技巧，以及督導和培訓下屬。

5.9 技師在改善管理和技術創新方面發揮著重要的作用。本會建議可循以下其中一個途徑培訓技師：



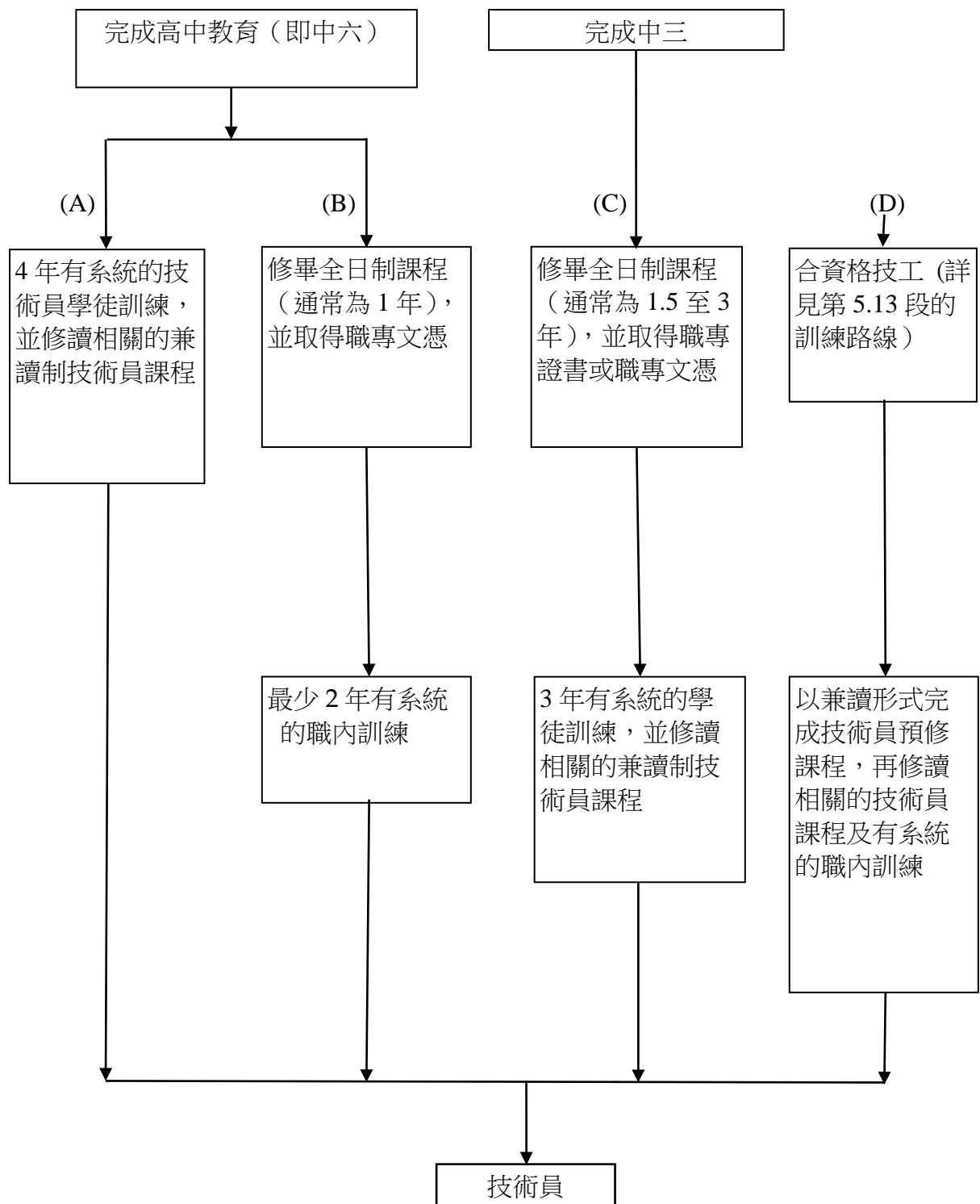
工科畢業生訓練計劃 (Engineering Graduate Training Scheme, EGTS)

5.10 為了向工科畢業生提供更多有系統的實務訓練機會，VTC的創新及科技訓練委員會(Innovation and Technology Training Board, ITTB)正推行EGTS，這是一項資助培訓計劃，向工科畢業生提供為期18個月的實務訓練，使他們達到香港工程師學會企業會員資格的認可水平。EGTS每名受訓者都可以通過其僱主獲取一部分的薪金津貼，並由ITTB監督培訓進度。VTC的技師訓練組(Technologist Training Unit, TTU)提供免費就業支援服務，幫助僱主招聘畢業生，讓畢業生取得培訓機會，亦會為培訓事宜向僱主提供協助。本會十分推薦僱主參與此計劃並善用技師訓練組的服務。

技術員／督導級人員的培訓

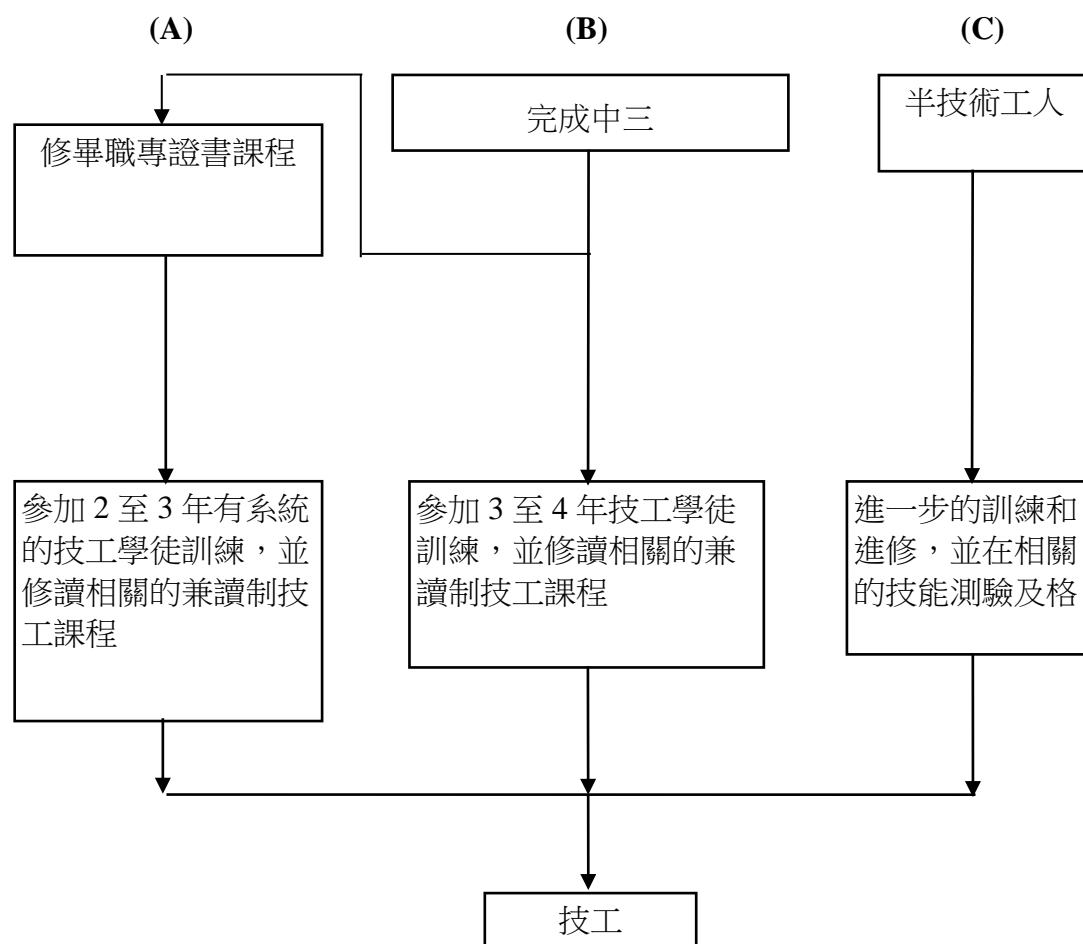
5.11 「技術員」須具備相當學歷、工作經驗及曾受實務訓練，能夠在技師的督導下，運用已確立的技術和程序，執行技術工作。培訓技術員一般有四個途徑，概述於下頁的圖表。

5.12 VTC將轄下科技學院和工業學院革新，於1999年成立香港專業教育學院(IVE)，開辦高級文憑、文憑、證書及職專文憑課程，為中學離校生提供技術員級的培訓。此外，IVE和卓越培訓發展中心（機械業）和卓越培訓發展中心（精密工程業）亦為製造科技業的技術人員和學徒開辦行業相關的實用課程，有全日制、日間兼讀制、夜間兼讀制等修讀模式。



技工級人員的培訓

5.13 「技工」是指技術熟練的工人，能應用技術執行專屬行業內的各種職務。除具備實際技能，亦需有相關的理論知識，以便能適應日新月異的科技發展。培訓技工的三種常用途徑如下：



5.14 本會推薦途徑(A)，因為培訓期較短，而且持有職專證書的學員已接受過基本技術訓練，在參加學徒計劃後，很快便能投入工作，亦更容易適應工業環境。

技術教育和培訓機構

5.15 現時有幾所大專院校和香港生產力促進局提供各種與製造科技業有關的全日制、日間兼讀制和夜間兼讀制訓練課程。同時，IVE和卓越培訓發展中心(機械業)和卓越培訓發展中心(精密工程業)亦提供各種相關的兼讀制技術提升課程。僱主可善用這些培訓機構的訓練設施，並資助員工報讀相關課程，提升他們的技術知識和技能。此外，這些培訓機構又舉辦研討會和工作坊，幫助僱主和員工吸納新技術。

5.16 為了配合製造科技業的發展需要，僱員必須抱持終身學習的理念。僱主亦

必須認同這種需要，支持僱員修讀技能提升課程和參加培訓計劃、工作坊和研討會等，以掌握先進的技術。

VTC的卓越培訓發展中心

5.17 本會負責就卓越培訓發展中心（機械業）和卓越培訓發展中心（精密工程業）的發展和培訓事宜提供建議。職業訓練局九龍灣大樓內的兩間卓越培訓發展中心及青年學院（九龍灣），為新入行人士開辦以下課程：

課程名稱	技能級別	修讀期
職專文憑（機械工程）	技術員	1 至 3 年

5.18 除了上述的全日制課程外，卓越培訓發展中心亦為從業員提供各種全日制、日間兼讀制及夜間兼讀制課程，培訓本地從業員應對香港知識型經濟的發展。訓練課程涵蓋電腦輔助設計／電腦輔助製造／電腦輔助工程(CAD／CAM／CAE)、數控加工、3D 打印及快速成型、逆向工程、塑膠注塑模具設計、金屬科技、機械鉗工實務及裝置、自動化工程、品質檢查等範疇。

5.19 為回應塑膠業中小企的培訓需要，卓越培訓發展中心繼續提供CAD／CAM／CAE技術培訓課程，以協助技術僱員有效地應用先進的技術軟件。受訓者將會在卓越培訓發展中心及工作場所內，接受實務訓練。

5.20 本會呼籲僱主全力支持卓越培訓發展中心，招聘該中心的學徒和受訓者，並安排僱員參加相關的技能提升課程，以提高技術水平。

VTC的相關培訓服務

5.21 為協助僱主策劃培訓事宜，VTC提供以下服務：

- (i) 法定的**學徒訓練計劃** – 讓技術員和技工接受有效培訓，以配合行業需求。
- (ii) **工科畢業生訓練計劃** – 幫助工程專業的學生和畢業生完成工程師專業培訓。
- (iii) **自願性技能測驗和證書計劃** – 確立和認可技術人員的水

平。本會一直為機械打磨裝配工、認可塑膠技術員（產品設計）及注塑機調校員舉辦技能測驗。

- (iv) **再工業化及科技培訓計劃** – 這是創新及科技基金轄下的資助計劃，以 2:1 的配對形式資助本地企業人員接受高端科技培訓，尤其是與「工業 4.0」有關的培訓。

5.22 僱主可聯絡VTC協助設立培訓計劃並招募受訓者。

珠三角地區的培訓課程

5.23 製造科技業大部分生產設施位於珠三角地區，目前僱用約450 000名內地工人，當中有28 000名工程師。如第3.12段所述，僱主每年派遣約430名技師及500名技術員往香港以外工場工作超過六個月。這些數字顯示，珠三角地區的香港和內地僱員培訓需求很大。為此，IVE和卓越培訓發展中心特別以全額成本回收方式開辦培訓課程，範疇包括：機械和自動化工程、塑膠注塑模具設計、電腦數控機械加工及CAD／CAM技術、塑膠材料知識及適用於香港的工程繪圖和作業標準，積極為香港僱主提供支援，滿足他們的培訓需求。

Membership of the Manufacturing Technology Training Board

(As at 31 March 2019)

Chairman:

Mr CHEUNG Tat-choi, Stanley (ad personam)

Members:

Mr AU Kit-ho, Alfred	(nominated by The Hong Kong Plastics Manufacturers Association)
Mr CHOI Chun-kit, Felix	(nominated by Federation of Hong Kong Industries)
Mr CHOW Hon-kong, John	(ad personam)
Dr CHUNG Sai-wing	(nominated by Hong Kong & Kowloon Plastic Products Merchants United Association)
Mr KONG Hon-po, Vincent	(nominated by Hong Kong Foundry Association)
Mr LAI Chun-yu, Frankie	(nominated by The Hong Kong Metals Manufacturers Association)
Prof LAM Chuen-chun, David	(nominated by a Local University)
Ir LEE Kwok-keung, Thomas	(nominated by Hong Kong Productivity Council)
Mr LEE Yuen-fat	(nominated by Hong Kong Federation of Innovative Technologies and Manufacturing Industries)
Mr LEUNG Chun-sing	(nominated by Hong Kong Metal and Electronics Industries General Union)
Mr NG Ka-ho, Andy	(nominated by The Chiu Chau Plastic Manufacturers Association)
Mr NG Ping-hong	nominated by HK Rubber & Plastic Industry Employees Union
Mr SUN Yung-liang, Warren	(nominated by The Chinese Manufacturers' Association of Hong Kong)
Mr TAN Che-keung, Calvin	(nominated by Hong Kong Mould & Die Council)

Dr TSUI Chi-pong, Gary	(nominated by a Local University)
Mr LAW Wing-chiu	(representative of the Commissioner for Labour)
Ms MAK Wun-ting, Tracy	(representative of the Director-General of Trade and Industry)
Ir SHIU Chi-yung	(representative of the Executive Director, Vocational Training Council)

In-attendance:

Dr TANG Shung-tse, Alan	(representative of the Hong Kong Institute of Vocational Education)
Mr LEUNG Kim-ki, Tommy	(Manager-In-Charge, Pro-Act Training and Development Centre (Precision Engineering))
Mr WAN Siu-chung	(Manager-In-Charge, Pro-Act Training and Development Centre (Mechanical))

Secretary:

Mr LAM Chi-piu, Angus	(Vocational Training Council)
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製造科技業訓練委員會委員名單

(2019 年 3 月 31 日)

主席：

張達材先生 (獨立人士)

委員：

歐傑豪先生 (香港塑膠業廠商會提名)

蔡俊杰先生 (香港工業總會提名)

周漢光先生 (獨立人士)

鍾細榮博士 (港九塑膠製造商聯合會提名)

江漢波先生 (香港鑄造業總會提名)

黎進裕先生 (香港金屬製造業協會提名)

林銓振教授 (本地某大學提名)

李國強工程師 (香港生產力促進局提名)

李遠發先生 (香港創新科技及製造業聯合總會提名)

梁駿聲先生 (香港五金電子科技業總工會提名)

吳家豪先生 (潮僑塑膠廠商會提名)

吳炳康先生 (香港膠業從業員協會提名)

孫榮良先生 (香港中華廠商聯合會提名)

陳志强先生 (香港模具協會提名)

崔智邦博士 (本地某大學提名)

羅永釗先生 (勞工處處長代表)

麥煥婷女士 (工業貿易署署長代表)

邵志勇工程師

(職業訓練局執行幹事代表)

列席者：

鄧崇智博士

(香港專業教育學院代表)

梁劍奇先生

(卓越培訓發展中心(精密工程業)中心
主管)

溫兆聰先生

(卓越培訓發展中心(機械業)中心主管)

秘書：

林之彪先生

(職業訓練局)

Membership of the Working Party on 2018 Manpower Survey

(As at 31 March 2019)

Chairman:

Mr CHEUNG Tat-choi, Stanley (ad personam)

Members:

Mr AU Kit-ho, Alfred (nominated by The Hong Kong Plastics Manufacturers Association)

Mr CHOI Chun-kit, Felix (nominated by Federation of Hong Kong Industries)

Dr CHUNG Sai-wing (nominated by Hong Kong and Kowloon Plastic Products Merchants United Association)

Mr LAI Chun-yu, Frankie (nominated by The Hong Kong Metals Manufacturers Association)

Prof LAM Chuen-chun, David (nominated by a Local University)

Ir LEE Kwok-keung, Thomas (nominated by Hong Kong Productivity Council)

Mr LEUNG Chun-sing (nominated by Hong Kong Metal and Electronics Industries General Union)

Mr NG Ka-ho, Andy (nominated by The Chiu Chau Plastic Manufacturers Association)

Mr NG Ping-hong (nominated by HK Rubber & Plastic Industry Employees Union)

Mr TAN Che-keung, Calvin (nominated by Hong Kong Mould & Die Council)

Dr TANG Shung-tse, Alan (representative of the Hong Kong Institute of Vocational Education)

Mr LEUNG Kim-ki, Tommy (Manager-In-Charge, Pro-Act Training and Development Centre (Precision Engineering))

Mr WAN Siu-chung (Manager-In-Charge, Pro-Act Training and Development Centre (Mechanical))

Secretary:

Mr LAM Chi-piu, Angus

(Vocational Training Council)

製造科技業人力調查工作小組成員名單

(2019 年 3 月 31 日)

主席：

張達材先生 (獨立人士)

委員：

歐傑豪先生 (香港塑膠業廠商會提名)

蔡俊杰先生 (香港工業總會提名)

鍾細榮博士 (港九塑膠製造商聯合會提名)

黎進裕先生 (香港金屬製造業協會提名)

林銓振教授 (本地某大學提名)

李國強工程師 (香港生產力促進局提名)

梁駿聲先生 (香港五金電子科技業總工會提名)

吳家豪先生 (潮僑塑膠廠商會提名)

吳炳康先生 (香港膠業從業員協會提名)

陳志强先生 (香港模具協會提名)

鄧崇智博士 (香港專業教育學院代表)

梁劍奇先生 (卓越培訓發展中心 (精密工程業) 中心主管)

溫兆聰先生 (卓越培訓發展中心 (機械業) 中心主管)

秘書：

林之彪先生 (職業訓練局)

Terms of Reference of the Manufacturing Technology Training Board

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 Council) the development of vocational and professional education and training (VPET) facilities to meet the assessed manpower demand.
4. To advise the Council on the strategic development and quality assurance of its programmes in the relevant disciplines.
5. To prescribe job specifications for the principal jobs in the industry defining the skills and knowledge and advise on relevant training programme specifying the time a trainee needs to spend on each skill element.
6. 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.
7. To advise on the conduct of skill competitions in key trades in the industry for the promotion of VPET as well as participation in international competitions.
8. 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 VPET in the industry.
9. To organise seminars/conferences/symposia on VPET for the industry.
10. To advise on the publicity relating to the activities of the Training Board and relevant VPET programmes of the Council.
11. 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.
12. To undertake any other functions delegated by the Council in accordance with Section 7 of the Vocational Training Council Ordinance.

製造科技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. 就發展業內職業專才教育及訓練設施應付人力需求，向職業訓練局(下稱「局方」)提供意見。
4. 就相關學科的課程發展策略及質素保證，向局方提出建議。
5. 擬訂本業主要職務的工作範圍，界定所需的技能及知識，審議訓練方案，包括訂定每種技能所需的訓練期。
6. 對技術評估、技能測驗及認證制度提供意見，以確定從業員、學徒及見習員的技能水平。
7. 就本業主要行業舉辦技能比賽提供意見，以推廣職業專才教育和派員參加國際賽事。
8. 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，共商本業職業專才教育的發展與推廣事宜。
9. 為本業舉辦有關職業專才教育的研討會和會議。
10. 就訓練委員會工作和相關職業專才教育課程之推廣宣傳，向局方提供意見。
11. 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。
12. 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 2018 MANPOWER SURVEY OF THE MANUFACTURING TECHNOLOGY INDUSTRY

製造科技業2018年人力調查

The 2018 Manpower Survey of the Manufacturing Technology Industry (MT) aims at collecting manpower information of the industry concerned for formulating recommendations on future manpower training. Please kindly provide the information of your establishment as at **1 July 2018** by answering the questionnaire. Thank you.

製造科技業2018年人力調查旨在蒐集業內人力情況的最新資料，並按此為未來人力訓練制訂適當建議。懇請貴機構根據**2018年7月1日**的人力情況填寫此問卷。多謝合作。

Establishment Information

機構資料

NATURE OF BUSINESS: _____

業務性質

(For official use)

Industry Code _____

TOTAL NO. OF PERSONS ENGAGED: _____

僱員總人數

Details of Contact Person*

聯絡人資料*

NAME OF PERSON TO CONTACT: _____

聯絡人姓名

POSITION: _____

職位

TEL. NO.: _____ - _____

電話

FAX NO.: _____

圖文傳真

E-MAIL : _____

電郵

* The information provided will be used for the purpose of this and subsequent manpower surveys.
所提供資料將用作是次及日後人力調查之用。

Part I – Manpower Information
第一部份 – 人力情況

For each principal job, please fill in the total number of employees as at survey reference date. The employees **include all those under Hong Kong company's payroll, disregarding whether the employees are deployed to work in other places (including the mainland of China).**

請填寫 貴機構於統計日期僱用的每個主要職務的僱員總數。僱員**包括 貴公司在香港人事編制內的所有僱員，不論是否有派駐往其他地方工作（包括中國內地）。**

Please complete columns 'B' to 'F' of the questionnaire according to the list of principal jobs by referring to Appendix B for job description of individual job.

請根據列表中的主要職務，並參考附錄B有關各種職務的工作說明來填寫表內各'B'至'F'欄。

Principal Jobs 主要職務

Please refer to Appendix A for column explanations. 請參考附錄A內各欄的說明。

Job Code 職位編號	(A) Principal Job 主要職務 (See Appendix B) (參閱附錄B)	(B) No. of Employees as at Survey Reference Date (Excl. trainees [#]) 在統計日期 的僱員人數 (受訓者 [#] 除外)	(C) No. of Vacancies as at Survey Reference Date (Excl. trainees [#]) 在統計日期的 空缺額 (受訓者 [#] 除外)	(D) Forecasted No. of Employees as at July 2019 (Excl. trainees [#]) 預計在2019年 7月的僱員人數 (受訓者 [#] 除外)	(E) No. of Trainees [#] as at Survey Reference Date 在統計日期的 受訓者 [#] 人數	(F) Average Monthly Remuneration Package 每月平均薪酬
	Please enter a zero '0' in the box if there is no employee /vacancy/trainee. 如沒有僱員/空缺/受訓者，請在方格內填入'0'。					Code 編號 1 \$10,000 or below or below 2 \$10,001 - \$15,000 3 \$15,001 - \$20,000 4 \$20,001 - \$25,000 5 \$25,001 - \$30,000 6 \$30,001 - \$40,000 7 Over \$40,000 以上
e.g: 例子:	Job Title A (3 employees, 1 trainee and 2 vacancies) 職位甲 (3名僱員, 1名受訓者及2個空缺)	3	2	5	1	5
	Technologist / Managerial Level 技師/經理級					
	A technologist/manager is a person who has the qualification and experience equivalent to that required for corporate membership of a professional institution. He/She should 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, to exercise original thought and judgment, to keep abreast of technology, to apply the latest techniques and to supervise/develop his/her sub-ordinates. 技師/經理級人士須具備相當於有關專業學會正式會員所需的資歷及經驗，並能分析及解決各類技術上的問題。此外，亦須負責發展及應用工程原理，具創見和判斷力；與科技發展並進，應用最新技術，以及督導和培訓下屬。					
101	Mechanical Engineer 機械工程師					
102	Manufacturing/Production/Industrial Engineer 製造/生產/工業工程師					
103	Materials Engineer/Metallurgist 用料工程師/冶金技師					
104	Electrical Engineer 電機工程師					
105	Electronics Engineer 電子工程師					
106	Technical Services Engineer 技術支援工程師					
107	Technical Sales/Marketing Manager 技術營銷/市務/市場經理					
108	Logistics Manager 物流經理					
109	Merchandising Manager 採購經理					
110	Training Manager 訓練經理					

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。

Please refer to Appendix A for column explanations. 請參考附錄A內各欄的說明。

Job Code 職位編號	(A) Principal Job 主要職務 (See Appendix B) (參閱附錄 B)	(B) No. of Employees as at Survey Reference Date (Excl. trainees#) 在統計日期 的僱員人數 (受訓者#除外)	(C) No. of Vacancies as at Survey Reference Date (Excl. trainees#) 在統計日期的 空缺額 (受訓者#除外)	(D) Forecasted No. of Employees as at July 2019 (Excl. trainees#) 預計在2019年 7月的僱員人數 (受訓者#除外)	(E) No. of Trainees# as at Survey Reference Date 在統計日期的 受訓者#人數	(F) Average Monthly Remuneration Package 每月平均薪酬 Code 編號 1 \$10,000 or below 或以下 2 \$10,001 - \$15,000 3 \$15,001 - \$20,000 4 \$20,001 - \$25,000 5 \$25,001 - \$30,000 6 \$30,001 - \$40,000 7 Over \$40,000 以上
	Please enter a zero '0' in the box if no employee /vacancy/trainee. 如沒有僱員/空缺/受訓者，請在方格內填入 '0'。					
Technologist / Managerial Level (Continued) 技師/經理級 (續)						
111	Engineering Manager 工程經理					
112	Factory Manager 工廠經理					
113	Production Manager 生產部經理					
114	Q.C./ Q.A. Manager/Engineer 品質控制/保證經理/工程師					
115	Product/Graphic Designer 產品/平面設計師					
116	Product Engineer 產品工程師					
117	CAD, CAM or CAE Engineer/Tooling Engineer 電腦輔助設計、電腦輔助生產或電腦 輔助工程工程師/工具工模工程師					
118	Project Engineer 項目策劃及統籌工程師					
119	Costing Engineer 成本工程師					
120	Processing Engineer 加工工程師					
Technician / Supervisory Level 技術員/督導級						
A technician/supervisor is a person who occupies a position between the technologist/manager and the craftsman. His/Her education, training and practical experience enable him/her to apply proven techniques and procedures to carry out technical tasks, normally under the guidance of a technologist/manager. 技術員/督導員的職級介乎技師/經理級人士與技工之間，須具備相當學歷、工作經驗及曾接受訓練，一般可在技師/經理級人士的督導下，運用已確立的技术和方法完成工作。						
201	Mechanical Draftsman 機械繪圖員					
202	Mechanical Engineering Technician 機械工程技術員					
203	Manufacturing/Production/Industrial Engineering Technician 製造/生產/工業工程技術員					
204	Electrical Engineering Technician 電機工程技術員					
205	Foreman/Supervisor 管工/監督					
206	Electronics Technician 電子技術員					
207	Technical Services Technician 支援技術員					
208	Technical Sales/Marketing Executive 技術營銷/市務主任					
209	Co-ordinator 協理員/聯絡員					

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。

Please refer to Appendix A for column explanations. 請參考附錄A內各欄的說明。					
(A) Principal Job 主要職務 (See Appendix B) (參閱附錄 B)	(B) No. of Employees as at Survey Reference Date (Excl. trainees#) 在統計日期 的僱員人數 (受訓者#除外)	(C) No. of Vacancies as at Survey Reference Date (Excl. trainees#) 在統計日期的 空缺額 (受訓者#除外)	(D) Forecasted No. of Employees as at July 2019 (Excl. trainees#) 預計在2019年 7月的僱員人數 (受訓者#除外)	(E) No. of Trainees# as at Survey Reference Date 在統計日期的 受訓者#人數	(F) Average Monthly Remuneration Package 每月平均薪酬 <u>Code</u> 編號 1 \$10,000 or below 或以下 2 \$10,001 - \$15,000 3 \$15,001 - \$20,000 4 \$20,001 - \$25,000 5 \$25,001 - \$30,000 6 \$30,001 - \$40,000 7 Over \$40,000 以上
Please enter a zero '0' in the box if no employee /vacancy/trainee. 如沒有僱員/空缺/受訓者，請在方格內填入 '0'。					
Technician / Supervisory Level (Continued) 技術員/督導級 (續)					
210	Logistics Executive/Supervisor 物流主任				
211	Merchandiser 採購員				
212	Production Supervisor 生產主管				
213	Q.C./ Q.A. Supervisor/Technician 品質控制/保證主管/技術員				
214	Training Officer 訓練主任				
215	Research and Development Technician 研究及發展技術員				
216	Product/ Packaging Development Technician 產品/包裝發展技術員				
217	Laboratory/ Materials Technician 實驗室/材料技術員				
218	Tooling Technician 工具工模技術員				
219	CAD or CAM Technician (Tooling/3D Printing) 電腦輔助設計或電腦輔助生產技術員 (工模/立體打印)				
220	Production Planner 生產策劃員				
Craftsman Level 技工級					
A craftsman is a skilled worker who is able to apply his/her skills to a wide range of jobs within his/her trade, with minimum direction and supervision. A craftsman possesses not only practical skills but also related theoretical knowledge which enables him/her to adapt himself/herself to new technologies. 技工是指熟練工人，能在有限度的指示及督導下，應用各種技能執行個別行業的職務。技工除須具備實際技能外，亦需有相關的理論知識，以便能適應日新月異的科技發展。					
301	Machinist 機床工				
302	Precision Machinist 精密加工機床工				
303	Machine Setter 機器調校工				
304	Mould/ Die and Tool Maker 製模及工具技工				
305	Fixture Fabricator 夾具製造工				
306	Electrician 電器技工				
307	Mechanical Fitter 機械打磨裝配工				
308	Moulder and Core Maker (Sand) 砂模及模心製造工				
309	Furnaceman 熔爐工				

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。

Please refer to Appendix A for column explanations. 請參考附錄A內各欄的說明。

Job Code 職位 編號	(A) Principal Job 主要職務 (See Appendix B) (參閱附錄 B)	(B) No. of Employees as at Survey Reference Date (Excl. trainees [#]) 在統計日期 的僱員人數 (受訓者 [#] 除外)	(C) No. of Vacancies as at Survey Reference Date (Excl. trainees [#]) 在統計日期 的空缺額 (受訓者 [#] 除外)	(D) Forecasted No. of Employees as at July 2019 (Excl. trainees [#]) 預計在2019年 7月的僱員人數 (受訓者 [#] 除外)	(E) No. of Trainees [#] as at Survey Reference Date 在統計日期 的受訓者 [#] 人數	(F) Average Monthly Remuneration Package 每月平均薪酬 Code 編號 1 \$10,000 or below 或以下 2 \$10,001 - \$15,000 3 \$15,001 - \$20,000 4 \$20,001 - \$25,000 5 \$25,001 - \$30,000 6 \$30,001 - \$40,000 7 Over \$40,000 以上
	Please enter a zero '0' in the box if no employee /vacancy/trainee. 如沒有僱員/空缺/受訓者，請在方格內填入 '0'。					
Craftsman Level (Continued) 技工級 (續)						
310	Electric Arc and Gas Welder 電焊氣焊工					
311	Sheetmetal Fabricator 薄片金屬構造工					
312	Steel Fabricator (Thick Plate) 鋼板構造工					
313	Plumber and Pipe Fitter 喉管工					
314	Pattern/Model/Prototype Maker 樣本/模型/生產原型製造工					
315	Electroplating and Metal Coating Worker 電鍍及金屬塗層工					
316	Painter 髹漆工					
317	Metal Printing Craftsman 金屬印製技工					
318	Rolling Mill/Extrusion Press Craftsman 軋壓/擠壓技工					
319	Heat Treatment Craftsman 熱處理技工					
320	Eding/Shaping Craftsman 車邊工					
323	Plastics Machine Setter 調機技工					
324	Sizing (Plastics/ Fabric) 裁床技工 (塑膠/布料)					
325	Quality Control Inspector 品質檢查工					
Operative Level 操作工級						
A operative worker is a worker who performs tasks in the assembly of products in accordance with predetermined job instructions or operates machine(s) which have been set up by other persons. 操作工是指那些能按照既定的工作指示裝配配件使成製成品，或操作已由他人校妥的一種或多種機床之工人。						
401	Semi-skilled Machine Operator 機器操作工					
402	Fettler 鑄件整理工					
403	Pourer 澆鑄工					
404	Die-casting Machine Operator 金屬壓鑄機操作工					
405	Electric-resistance Welder 電阻焊接工					
406	Polishing Worker 磨光工					
407	Striker 打鐵工					
408	Press Operator 啤機操作工					

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Please refer to Appendix A for column explanations. 請參考附錄A內各欄的說明。

Job Code 職位編號	(A) Principal Job 主要職務 (See Appendix B) (參閱附錄 B)	(B) No. of Employees as at Survey Reference Date (Excl. trainees [#]) 在統計日期 的僱員人數 (受訓者 [#] 除外)	(C) No. of Vacancies as at Survey Reference Date (Excl. trainees [#]) 在統計日期 的空缺額 (受訓者 [#] 除外)	(D) Forecasted No. of Employees as at July 2019 (Excl. trainees [#]) 預計在2019年 7月的僱員人數 (受訓者 [#] 除外)	(E) No. of Trainees [#] as at Survey Reference Date 在統計日期 的受訓者 [#] 人數	(F) Average Monthly Remuneration Package 每月平均薪酬 Code 編號 1 \$10,000 or below 或以下 2 \$10,001 - \$15,000 3 \$15,001 - \$20,000 4 \$20,001 - \$25,000 5 \$25,001 - \$30,000 6 \$30,001 - \$40,000 7 Over \$40,000 以上
	Please enter a zero '0' in the box if no employee /vacancy/trainee. 如沒有僱員/空缺/受訓者，請在方格內填入 '0'。					
Operative Level (Continued) 操作工級 (續)						
409	Paint Spraying Gun Operator/Zinc Sprayer 噴漆/噴鋅工					
410	Semi-skilled Electro-plating and Metal Coating Worker 電鍍及金屬塗層半技工					
411	Quality Control Operator 品質控制操作工					
412	Assembler 裝配工					
413	Injection Moulding Machine Operator 注塑機操作工					
414	Crane Operator 起重機操作工					
415	Polishing Worker (Lens) 磨鏡片工					
416	Blow Moulding Machine Operator 吹塑機工					
417	Film Blowing Machine Operator 吹膜機工					
418	Vacuum Forming Machine Operator 真空吸塑機工					
419	Other Plastics Processing Machine Operator 其他塑膠加工機操作工					
420	Power Press Operator 動力沖壓機操作工					
421	Printing Operator 印刷工					
422	Seamstress/ Sewing Machine Operator 縫工					
Unskilled Level 非技術工人級						
Unskilled worker is normally assigned to perform repetitive work requiring only a narrow range of skills and short period of training. 非技術工人通常獲指派擔任性質重複的工作，要求的技能較少，訓練時間亦較短。						
501	General Worker 雜工					
OTHER RELEVANT MANUFACTURING TECHNOLOGY STAFF 其他相關製造科技人員						
<i>For Official Use</i>						

The term "trainees" includes all trainees receiving any form of training and apprentices under a contract of apprenticeship.
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Part II
第二部份

Internal Promotion

內部晉升

1. Number of internal promotion in the past 12 months:
過去十二個月內，內部晉升的人數：

	No. of employees 僱員人數
(a) From Technician/Supervisor to Technologist/Manager 由技術員／督導員晉升至技師／經理	
(b) From Craftsman to Technician/Supervisor 由技工晉升至技術員／督導員	
(c) From Others to Craftsman 由其他職級晉升至技工	

Hong Kong Technical Staff Posted Outside Hong Kong

被派駐往香港以外地方任職的香港技術員工

2. Number of technologists/managers, technicians/supervisors, craftsmen and trainees who had been posted outside Hong Kong for more than half year in the past 12 months
過去十二個月內，被派駐往香港以外地方任職超過半年的技師／經理、技術員／督導員、技工及受訓者人數

(a) Number of Technologists/Managers 技師／經理人數	<input type="text"/>	(b) Number of Technicians/Supervisors 技術員／督導員人數	<input type="text"/>
(c) Number of Craftsmen 技工人數	<input type="text"/>	(d) Number of Trainees 受訓者人數	<input type="text"/>

With Manufacturing Technology Industry Related Operations in the Mainland of China

於中國內地擁有與製造科技業有關業務

3. Total number of workers employed for the operations in the mainland of China (under the payroll of Mainland Company)
在中國內地僱用的員工總數（由內地公司發薪）
4. Number of technologists employed for the operations in the mainland of China (under the payroll of Mainland Company)
在中國內地僱用的技師人數（由內地公司發薪）
5. Forecast number of technologists to be employed for the operations in the mainland of China as at July 2019 (under the payroll of Mainland Company)
預計在 2019 年 7 月，在中國內地僱用的技師人數（由內地公司發薪）

Employer's View on the Expected Change in Business Situation

僱主對未來業務狀況預期變動的意見

6. Employer's View on the Expected Change in Business Situation (Please tick as appropriate)

僱主對未來業務狀況預期變動的意見（請在適當的格內填上✓號）

	Better 較佳	The Same 不變	Worse 較差	Please state reasons to expect worse business situation 請說明預期業務狀況較差的原因
(a) Coming Year 未來一年	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> →	
(b) Coming 3 Years 未來三年	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> →	

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

僱員宜有的教育程度、訓練方式及訓練期

7. Please choose preferred Education, Mode of Training and Period of Training of Employees
請選擇僱員宜有的教育程度、訓練方式及訓練期

Job level 職級	Technologist/ Manager 技師／經理	Technician/ Supervisor 技術員／督導員	Craftsman 技工
(a) Education (Please tick “√” 1 box for each job level) 教育程度 (每職級請別 “√” 選 <u>一項</u>)			
(i) Postgraduate Degree 研究生學位	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(ii) First Degree 學士學位	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(iii) Sub-degree (e.g. Higher Diploma) 副學位 (例如高級文憑)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(iv) Diploma/Certificate 文憑／證書	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(v) Secondary 4 to 7 中四至中七	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(vi) Secondary 3 or below 中三或以下	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) Mode of training (Please tick “√” 1 box for each job level) 訓練方式 (每職級請別 “√” 選 <u>一項</u>)			
(i) Graduate traineeship 工科畢業生訓練	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(ii) On-the-job training 在職訓練	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(iii) Apprenticeship 學徒訓練	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(iv) Others 其他	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c) Training Period (Please tick “√” 1 box for each job level) 訓練期 (每職級請別 “√” 選 <u>一項</u>)			
(i) 4 years or above 四年或以上	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(ii) 3 to less than 4 years 三年至四年以下	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(iii) 2 to less than 3 years 二年至三年以下	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(iv) 1 to less than 2 years 一年至二年以下	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(v) 6 months to less than 1 year 六個月至一年以下	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(vi) Below 6 months 六個月以下	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

End of Questionnaire. Thank You for Your Co-operation.
問卷完，多謝合作。

The 2018 Manpower Survey of the
Manufacturing Technology Industry
製造科技業2018年人力調查

Explanatory Notes
附註

Part I
第一部份

1. Principal Jobs - Column 'A'
主要職務 —— 'A' 欄

- (a) Please go through column 'A' and mark those principal jobs applicable to your establishment. For detailed job descriptions for principal jobs, please refer to Appendix B.
請瀏覽 'A' 欄，選取適用於 貴機構的主要職務。有關詳細的工作說明，請參閱附錄B。
- (b) Please add in column 'A' titles of any principal jobs not mentioned in job descriptions (Appendix B); briefly describe them in respect of the appropriate job categories.
如 貴機構另有技術性主要職務未載於工作說明（附錄B），請一併填入 'A' 欄內，並簡述其所屬的職務類別及等級。
- (c) The job titles may not be the same as those adopted by your company, but if the description of a certain job in your company is the same or substantially the same as the job description of, for example, Technical Services Engineer, then for the purpose of this survey you should regard the job holder as a Technical Services Engineer regardless of his/her actual title in your company.
調查表所列的職稱可能與 貴公司所採用的有別，但如 貴公司某職務的工作性質與調查表所載職務（例如「技術支援工程師」）相同或相近，則擔任該職務者不論在貴公司的實際職稱為何，在是次調查中亦應歸類為「技術支援工程師」。
- (d) In the event where an employee's duties in your company are split between two or more job titles, please use the job title that best describes his/her principal responsibility.
如 貴公司有員工身兼多項職責，請選用最能反映其主要職責的職稱。

2. Number of Employees as at Survey Reference Date (Excl. trainees) – Column 'B'
在統計日期的僱員人數（受訓者除外） —— 'B' 欄

For each principal job, please fill in the total number of employees (excluding trainees) as at survey reference date. The employees include all those under Hong Kong company's payroll, disregarding whether the employees are deployed to work in other places (including the mainland of China).
請填寫 貴機構於統計日期僱用的每個主要職務的僱員總數（受訓者除外）。僱員包括 貴公司在香港人事編制內的所有僱員，不論是否有派駐往其他地方工作（包括中國內地）。

3. Number of Vacancies as at Survey Reference Date (Excl. trainees) – Column 'C'
在統計日期的空缺額（受訓者除外） —— 'C' 欄

Please fill in the total number of existing vacancies (excluding trainees) as at survey reference date. "Existing Vacancies" refer to those unfilled, immediately available job openings for which the company is actively trying to recruit personnel as at survey reference date.
請填上在統計日期每一主要職務的空缺額（受訓者除外）。「統計日期的空缺額」是指該職位於統計日期仍懸空，須立刻填補，而現正積極招聘人員填補。

4. Forecasted Number of Employees as at July 2019 (excl. trainees) – Column 'D'
預計在2019年7月的僱員人數（受訓者除外） —— 'D' 欄

Please fill in the forecasted number of employees as of July 2019 (excl. trainees). The number given could be less than that existing number of employees if a contraction is expected.

請填上在2019年7月每個主要職務的預計僱員人數（受訓者除外）。如估計屆時業務將會收縮，此欄所填人數可少於現有僱員人數。

5. Number of Trainees as at Survey Reference Date - Column 'E'

統計日期的受訓者人數—— 'E' 欄

Please fill in the number of employees undergoing training for each type of jobs as at survey reference date.

請填寫於統計日期正在接受訓練的僱員人數。

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。

6. Average Monthly Remuneration Package – Column 'F'

每月平均薪酬—— 'F' 欄

Please enter the code of the monthly remuneration package during the past 12 months (1.7.2017 - 30.6.2018) for each principal job of employees. This should include basic wages, regular overtime pay, cost of living allowance, meal allowance, average monthly amount of year end bonus, etc., if any. If you have more than one employee doing the same job, please enter the average figure.

請在 'F' 欄填入每個主要職務僱員過去十二個月（指二〇一七年七月一日至二〇一八年六月三十日期間）每月平均薪酬的編號，這包括底薪、定期超時工作工資、生活津貼、膳食津貼、每月平均之年終花紅等。若從事同類工作的僱員多於一名，則請取其平均收入。

Part II

第二部份

7. Question 1 – Internal Promotion

問題1 —— 內部晉升

An internal promotion is the promotion of an employee to a higher job level by virtue of his/her performance or abilities. In question 1, please fill in the number of internal promotions “from Technician/Supervisor to Technologist/Manager”, “from Craftsman to Technician/Supervisor” and “from Others to Craftsman” in the past 12 months in the respective columns. If an employee has more than one promotion during the year in your establishment, only the last and one promotion should be counted.

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。請於問題1所屬欄內填寫過去十二個月，機構內部由技術員／督導員晉升至技師／經理，由技工晉升至技術員／督導員，以及由其他職級晉升至技工的人數。如貴機構僱員在一年內有多過一次晉升，只需計算最後一次晉升在調查表內。

8. Question 2 – Hong Kong Technical Staff Posted Outside Hong Kong

問題2 —— 被派駐往香港以外地方任職的香港技術員工

In question 2, please enter the number of technologists/managers, technicians/supervisors, craftsmen and trainees who had been posted outside Hong Kong for more than half year in the past 12 months.

請在問題2填寫過去十二個月內，被派駐往香港以外地方任職超過半年的技師／經理、技術員／督導員、技工及受訓者人數。

9. Question 3-5 – With Manufacturing Technology Industry Related Operations in the Mainland of China

問題3-5 —— 於中國內地擁有與製造科技業有關業務

Question 3 Please enter the total number of workers employed for the operations in the mainland of China (under the payroll of Mainland Company). All mainland workers involved in engineering, management, clerical and production work in such operations should be included.

問題3 請填寫貴公司在中國內地僱用的員工總數（由內地公司發薪）。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。

Question 4 Please enter the total number of technologists employed for the operations in the mainland of China (under the payroll of Mainland Company). Mainland managers responsible for technical work should be included as technologists.

問題 4 請填寫在中國內地僱用的技師人數（由內地公司發薪）。負責技術工作的內地經理亦作內地技師計算。

Question 5 Please enter the forecast number of technologists to be employed for the operations in the mainland of China as at July 2019 (under the payroll of Mainland Company)

問題 5 請填寫預計在2019年7月，中國內地僱用的技師人數（由內地公司發薪）。

10. Question 6 – Employer’s View on the Expected Change in Business Situation

問題6 —— 僱主對未來業務狀況預期變動的意見

The purpose of question 6 is to seek employer’s view on the expected change in business situation for the coming year and the coming three years: whether the business situation will be better, the same or worse than this year.

問題6旨在調查僱主對未來一年及未來三年業務狀況預期變動的意見，即預計業務會比今年較佳、不變或較差。

11. Question 7 – Preferred Education, Mode of Training and Period of Training of Employees

問題7 —— 僱員宜有的教育程度、訓練方式及訓練期

In question 7, please tick the boxes the preferred education, mode of training and period of training which an employee in each of the three job levels (i.e. technologist/managerial level, technician/supervisory level and craftsman level) should have if he/she was to carry out his/her work competently. (Please tick 1 box for each job level).

請在問題7之方格內選擇技師／經理級、技術員／督導級及技工級的僱員宜具備何種教育程度、訓練方式及訓練期，才能勝任其工作。（每職級請剔選一項）

Definition of Preferred Level of Education:

宜有教育程度的定義：

◆ “Postgraduate Degree” refers to higher degrees (e.g. master degrees) offered by local or non-local education institutions, or equivalent.

「研究生學位」是指本地或非本地教育機構提供的高等學位（如碩士學位），或同等教育程度。

◆ “First Degree” refers to first degrees offered by local or non-local education institutions, or equivalent.

「學士學位」是指本地或非本地教育機構提供的學士學位，或同等教育程度。

◆ “Sub-degree” refers to Associate Degrees, Higher Diplomas, Professional Diplomas, Higher Certificates, Endorsement Certificates, Associateship or equivalent programmes offered by local or non-local education institutions.

「副學位」是指本地或非本地教育機構提供的副學士、高級文憑、專業文憑、高級證書、增修證書、院士銜或同等課程。

◆ “Diploma/Certificate” refers to technical and vocational education programmes including Diploma/Certificate courses, Diploma of Foundation Studies, Diploma of Vocational Education and programmes at the craft level, or equivalent.

「文憑／證書」是指技術及職業教育課程之文憑／證書、基礎課程文憑、職專文憑及技工程度的課程，或同等教育程度。

◆ “Secondary 4 to 7” refers to Secondary 4-7, covering the education programmes in relation to the Hong Kong Certificate of Education Examination (HKCEE), the Hong Kong Diploma of Secondary Education (HKDSE) Examination, Diploma Yi Jin, or equivalent.

「中四至中七」是指中四至中七（包括與香港中學會考、香港中學文憑考試、毅進文憑等相關的教育課程）或同等教育程度。

◆ “Secondary 3 or below” refers to Secondary 3 or below, or equivalent.

「中三或以下」是指中三或以下，或同等教育程度。

The 2018 Manpower Survey of the Manufacturing Technology Industry

製造科技業 2018 年人力調查

Job Descriptions of Principal Jobs in the Manufacturing Technology (MT) Industry

製造科技業主要職務工作說明

<u>Job Code</u> 職稱編號	<u>Principal Job Title</u> 主要職稱	<u>Job Description</u> 工作說明
TECHNOLOGIST / MANAGERIAL LEVEL 技師／經理級		
101	Mechanical Engineer 機械工程師	<p>Researches on mechanical engineering problems and product analysis; designs and advises on mechanical plant, equipment and machinery; plans and supervises their development, parts manufacture, installation, operation and maintenance. Usually specialises in one or more of the followings:</p> <p>(1) product analysis, design and development; and quality assurance of products;</p> <p>(2) sales and technical service;</p> <p>(3) plant engineering (installation and maintenance);</p> <p>(4) tooling design and manufacture.</p> <p>研究機械或產品工程問題及產品分析；擔任廠房、設施與機器等的設計工作，並就這方面提供意見；策劃及管理這些器材的發展、零部件製造、安裝、操作與保養。通常專門處理下列一種或多種工作：</p> <p>(1) 產品分析，設計與發展，以及品質測試等工作；</p> <p>(2) 推銷及技術方面的服務；</p> <p>(3) 廠房裝置工程（安裝與保養）；</p> <p>(4) 工具工模設計與製造。</p>
102	Manufacturing/ Production/ Industrial Engineer 製造／生產／工業工程師	<p>Designs, operates and controls manufacturing/production systems in industrial plants to ensure efficient use of the resources. This includes:</p> <p>(1) layout and design of plant and services;</p> <p>(2) choice of tooling, production equipment, materials, and fabrication/assembly methods;</p> <p>(3) provision of services such as manufacturing capability study, production scheduling, work study, quality assurance, and cost control.</p> <p>設計、操作及控制工廠內的製造／生產系統，以確保資源得以有效運用。有關工作包括：</p> <p>(1) 安排及設計廠房裝置與服務；</p> <p>(2) 選擇工具、生產設備、物料及構製／裝配方法；</p> <p>(3) 提供服務，例如生產力研究、生產調度、工作研究、品質控制及成本控制。</p>

<u>Job Code</u> 職稱編號	<u>Principal Job Title</u> 主要職稱	<u>Job Description</u> 工作說明
TECHNOLOGIST / MANAGERIAL LEVEL (CONTINUED) 技師／經理級（續）		
103	Materials Engineer / Metallurgist 物料工程師／冶金技師	<p>Provides a specialist service to the design, quality assurance and production functions by:</p> <ol style="list-style-type: none"> (1) advising on choice of materials for use in products and processes; (2) testing properties of materials, both incoming and during production; (3) advising on production process specifications such as temperature, composition, pressure, time, quenching media etc. for processes such as rolling, heat treatment, foundry, die-casting and plastic processing; (4) investigating production problems and product defects. <p>在設計、保持產品品質及生產過程方面提供下列專門服務：</p> <ol style="list-style-type: none"> (1) 就選擇產品及工序所用的物料提供意見； (2) 對輸入及生產進行中的物料性質進行測試； (3) 就各種工序如軋壓、熱處理、鑄造、鑄模及塑膠加工等提供有關生產工序規格的意見，例如溫度、組合、壓力、時間、驟冷劑等； (4) 調查生產方面的問題及產品的缺陷。
104	Electrical Engineer 電機工程師	<p>Designs and advises on:</p> <ol style="list-style-type: none"> (1) electrical equipment and systems, and plans and supervises their installation, operation and maintenance; (2) electrical components and devices used in products. <p>負責下列範圍的設計工作，並提供建議：</p> <ol style="list-style-type: none"> (1) 電氣設備及系統；此外，亦須策劃與監督這些器材的安裝、操作和保養工作； (2) 產品所用的電氣零件及配件。
105	Electronics Engineer 電子工程師	<p>Designs and advises on:</p> <ol style="list-style-type: none"> (1) electronic equipment and systems, and plans and supervises their installation, operation and maintenance; (2) electronic components and devices used in products. <p>負責下列範圍的設計工作，並提供建議：</p> <ol style="list-style-type: none"> (1) 電子設備及系統；此外，亦須策劃與監督這些器材的安裝、操作和保養工作； (2) 產品所用的電子配件及部件。
106	Technical Services Engineer 技術支援工程師	<p>Provides expertise and technical services relating to a specific machinery/equipment/apparatus in one of the following aspects:</p> <ol style="list-style-type: none"> (1) application of the software/hardware, and related customer training; (2) installation, commissioning, testing, repair and maintenance; (3) the application of plastics resins and additives; (4) the application of relevant technologies for processing and testing. <p>為有關機器／設備／儀器提供以下一項或多項技術支援服務：</p> <ol style="list-style-type: none"> (1) 使用軟件／硬件的說明及客戶培訓； (2) 安裝、啟動、測試及維修服務； (3) 塑膠原料及添加劑的應用； (4) 應用有關科技加工及測試。

Job Code 職稱編號	Principal Job Title 主要職稱	Job Description 工作說明
TECHNOLOGIST / MANAGERIAL LEVEL (CONTINUED) 技師／經理級（續）		
107	Technical Sales/ Marketing Manager 技術營銷／市務／市場經理	Plans, organises, directs and controls technical sales, marketing and promotional activities of professional equipment and products; Co-ordinates with research and development, production control and shipping departments in anticipating, identifying and satisfying customer needs; Reviews performance analysis for forecasting future technical market situation. 策劃、籌辦、指導及監督專業技術儀器／產品的市務推廣、營業及宣傳工作； 協調機構內的研究開發、生產控制、貨運等部門，作出預測、確定及滿足客戶需求； 檢討業績分析，預測未來產品市場狀況。
108	Logistics Manager 物流經理	Takes charge of the overall operation of the supply chain management; Plans, directs and controls the materials procurement activities of the company including material flow, from the stage of raw material supply throughout finished goods shipment and to meet in-house or customer's stringent Just-in-time (JIT) requirement; Be responsible to establish cost effective strategy to support the business needs. 負責公司供應鏈管理的一切運作； 策劃督導及控制公司物料採購工作，包括確保由原材料供應商至製成品／付運之間物料流程暢順，以符合內部或客戶對“悉時付運 JIT”的嚴格要求； 負責制定策略以配合機構整頓業務需求，以達到成本效益。
109	Merchandising Manager 採購經理	Keeps abreast of the up-to-date design, feature and quality requirements of the machinery/parts and component market; Leads a team of merchandisers in the co-ordination and presentation of sample and quotation and to negotiate with buyers/clients; Oversees and follow up buyers'/clients' orders, liaise with appropriate departments to ensure prompt shipment of these orders. 留意市場對機械、零部件的設計、特色及品質上最新要求； 領導一組採購員，配合樣辦及報價過程與客戶／買家商談； 統籌及跟進客戶／買家的訂單，與有關部門協作確保準時付運。
110	Training Manager 訓練經理	Plans, implements and coordinates staff training and employee career development programmes. 策劃、推行及統籌員工訓練和僱員職業發展計劃的工作。
111	Engineering Manager 工程經理	Plans, directs and controls the engineering activities of the company including product development, procurement, installation, maintenance and servicing the company's mechanical, electrical, electronic equipment and systems. 策劃、督導及掌管公司內各項與工程有關的工作，包括產品發展、採購，以及公司內的機械、電氣、電子裝備和系統的安裝和維修。
112	Factory Manager 工廠經理	Takes charge of the overall operation of the factory. Assumes full responsibility of the management of staff and workers in the factory. Enforces fire, safety and other government regulations. Supervises factory activities such as plant layout, assembly and delivery of finished products. 負責工廠運作的一切事務；負起管理工廠內職員及工人的全部責任；執行防火、安全及其他有關的政府規例；監督工廠內各項工作，例如廠房佈置、製成品的收發等。

Job Code 職稱編號	Principal Job Title 主要職稱	Job Description 工作說明
TECHNOLOGIST / MANAGERIAL LEVEL (CONTINUED) 技師／經理級（續）		
113	Production Manager 生產部經理	Plans, directs and controls the production activities of the company. Takes charges of the overall production programmes to ensure the maintenance of specified standards of quality, efficiency and economy. 策劃、督導及掌管公司內有關生產的工作；負責全面管理生產計劃，以確保其符合品質、效率及經濟等指標。
114	Q.C./ Q.A. Manager/ Engineer 品質控制／保證經理／工程師	Conducts design review on new products. Plans, directs and supervises the quality control/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、指導及監督品質控制／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控制／保證工作，使產品能符合標準及規格，並符合安全條例。
115	Product/ Graphic Designer 產品／平面設計師	Originates and develops ideas to design, create, modify and arrange the form of manufactured products, layouts and containers for the products based on factors such as design-function relationship, knowledge of design, art concepts, market and pricing characteristics, client specifications, method and cost of production to achieve aesthetically pleasing and functional effect for the products. 能根據設計與功能的關係、設計知識、美術概念、市場與價格特性、顧客規格、生產方法及成本等因素進行創作，並加以發揮，以便設計、創作、修改及安排製成品的形狀、結構及包裝，務求產品既美觀又實用。
116	Product Engineer 產品工程師	Originates and directs the design, modification and development of metals/plastics products, harmonising technical, aesthetic and economic features to satisfy client specifications. 擬訂及指導金屬／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。
117	CAD, CAM or CAE Engineer/ Tooling Engineer 電腦輔助設計、電腦輔助生產 或電腦輔助工程工程師／ 工具工模工程師	Plans and uses CAD, CAM or CAE facilities to design and manufacture moulds and dies for production of metals/plastics products and related components. Studies, designs, advises and prepares cost estimates on tools, jigs and fixtures, moulds and dies for manufacture of metals/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、電腦輔助生產或電腦輔助工程設備以設計及製造金屬／塑膠工模作生產金屬／塑膠產品及其配件之用。研究與設計製造金屬／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。
118	Project Engineer 項目策劃及統籌工程師	Plans and co-ordinates the development of metals/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. 策劃及統籌金屬／塑膠產品的開發工作，工作程序包括由項目設計至成本會計、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。

<u>Job Code</u> 職稱編號	<u>Principal Job Title</u> 主要職稱	<u>Job Description</u> 工作說明
TECHNOLOGIST / MANAGERIAL LEVEL (CONTINUED) 技師／經理級（續）		
119	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。研究製作成本及為成本數據提供最新資料。
120	Processing Engineer 加工工程師	Performs technical tasks related to the application of moulding/processing technology for the manufacture of parts. Optimises moulding systems and moulding/processing conditions to achieve quality requirements. Identifies technical problems related to moulding and performs trouble-shooting to solve problems on moulding/processing defects. Applies advanced technologies to improve the quality and efficiency on moulding/processing. 應用模塑／加工科技，製造零件；善用模塑／加工系統和調校條件，力求達至高品質水平；找出技術問題，並解決模塑／加工上的次品問題；以及應用先進技術，改進模塑／加工工作的品質與效益。
TECHNICIAN / SUPERVISORY LEVEL 技術員／督導級		
201	Mechanical Draftsman 機械繪圖員	Prepares arrangement, assembly and detailed drawings of machines, machine parts, tools, other mechanical equipment as well as manufactured products from sketches, specifications and existing parts. 依據草圖、規格及現有零件，繪製機器、機件、工具、其他機械設備及製成品的排列圖、組裝圖及明細圖。
202	Mechanical Engineering Technician 機械工程技術員	Performs technical tasks contributory to design, fabrication, construction, automation, installation, operation, maintenance and repair of mechanical plant and equipment, including maintenance of aircraft, either independently or under the direction of a qualified engineer. 獨自或在合資格工程師指導下，擔任技術工作，如從事設計、構製、建造、自動操作、安裝、操作、維修機械廠房和設備，包括飛機的保養。
203	Manufacturing/Production/ Industrial Engineering Technician 製造／生產／工業工程技術員	Performs technical tasks contributory to production processes, production planning and control, plant layouts and assurance of quality standards tooling, and the efficient and economical manufacturing/production of products through proper management of machinery and human resources, either independently or under the direction of a qualified engineer. 獨自或在合資格工程師指導下，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。正確管理機器及人力資源，以便製造工具，以及有效和經濟地製造產品。
204	Electrical Engineering Technician 電機工程技術員	Performs technical tasks contributory to design, development, manufacture, installation, operation, maintenance and repair of electrical systems and equipment, either independently or under the direction of a qualified engineer. 獨自或在合資格工程師指導下，擔任技術工作，如從事設計、發展、製造、安裝、操作及維修電氣系統和設備。

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TECHNICIAN / SUPERVISORY LEVEL (CONTINUED) 技術員/督導級 (續)		
205	Foreman/Supervisor 管工/監督	<p>Controls a group or groups of craftsmen or other workers by virtue of his/her skill, training and experience; maintains production at predetermined quality, rate and cost, discipline and safety; liaison between management and workers. Supervise manufacture, inspection, installation, operation, maintenance and repair of plants, tools and equipment or products.</p> <p>憑本身的技能、訓練及經驗，管理一組或數組技工或其他工人，使產品達到預定的品質、保持預算的生產率及生產成本不超出預算；維持管理部門與工人之間的溝通，以及工場內良好紀律及安全措施。監督廠房、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。</p>
206	Electronics Technician 電子技術員	<p>Performs technical tasks, contributory to design, development, manufacture, installation, operation, maintenance and repairs of electronic components, equipment and systems, either independently or under the direction of a qualified engineer.</p> <p>獨自或在合資格工程師的指導下，擔任技術工作，如從事設計、發展、製造、安裝、操作、維修電子配件、設備和系統。</p>
207	Technical Services Technician 支援技術員	<p>Performs technical tasks, normally under the direction and supervision of the Technical Services Engineer to assist in:</p> <ol style="list-style-type: none"> (1) application of the software/hardware, and related customer training; (2) installation, commissioning, testing, repair and maintenance; (3) calibration of equipment, quality control and assurance of process, parts and products at satellite/sub-contractor's plant. <p>通常在技術支援工程師的指導及監督下，擔任下列技術工作：</p> <ol style="list-style-type: none"> (1) 使用軟件/硬件的說明及客戶培訓； (2) 安裝、啟動、測試及維修服務； (3) 儀器校準，品質控制及保證，使屬下分廠及分包商的生產加工、零部件及成品符合規格。
208	Technical Sales/ Marketing Executive 技術營銷/市務主任	<p>Assists the Technical Sales/Marketing Manager in soliciting business, preparing marketing plans and other sales and promotional activities;</p> <p>Monitors market conditions and reflect customer changing requirements to management.</p> <p>協助技術營銷/市務經理招攬生意，製訂市務、推廣、營銷計劃及活動；</p> <p>監察市場動態，及時反映客戶需求的變化。</p>
209	Co-ordinator 協理員/聯絡員	<p>Plans, schedules and controls workload making optimum use of all equipment, material and labour throughout the company, its workshop/sub-contractors and co-ordinates with clients;</p> <p>Carries out process planning for jobs and estimates the time requirement for operations as to ensure that schedules are met.</p> <p>充分有效使用機構內部資源（包括工廠及分包商的設備、材料及勞務），及制定進度表，與客戶密切聯繫；</p> <p>估計每項職務的操作程序及所需時間，制定流程，以確保工作能夠依期完成。</p>

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TECHNICIAN / SUPERVISORY LEVEL (CONTINUED) 技術員／督導級 (續)		
210	Logistics Executive/ Supervisor 物流主任	Assists the Logistics Manager in following up the operation of the supply chain management; Co-ordinates the material procurement and flow of goods activities with suppliers, shipping companies, production control and shipping departments and customer's receiving department as to ensure that schedules are met on time. 協助物流經理跟進供應鏈管理上各項事宜； 協調供應商、貨運商、生產控制及船務部門，及客戶的收貨部門，保持材料採購至產品付運的流程暢順，以確保工作依期完成。
211	Merchandiser 採購員	Assists the Merchandising Manager; Negotiates with buyers/clients/customers and preparing quotations and handling production samples and orders; Follows up buyers order including liaising with other departments on the quality requirements and tracing the production progress as to ensure prompt shipment. 協助採購經理； 買賣商談及報價工作，處理生產訂單及樣辦製作； 跟進客戶訂單，包括與其他部門協調品質要求、生產進度以確保依期付運。
212	Production Supervisor 生產主管	Works independently or under the direction of Production Manager to set up and carry out production programmes. 獨立工作，或在生產經理的督導下設立及推行生產計劃。
213	Q.C./ Q.A. Supervisor/ Technician 品質管制／保證主管／技術員	Performs technical tasks, normally under the direction and supervision of a quality control/ quality assurance engineer, contributory to quality control 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／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／保證工作，使產品能符合標準及規格，並符合安全條例。
214	Training Officer 訓練主任	Assists the Training Manager in participating a wide range of training duties including employee development programmes. 協助訓練經理執行各項訓練職務，包括僱員發展計劃。
215	Research and Development Technician 研究及發展技術員	Performs technical tasks contributory to research of market trend, development of new products and improvement of process efficiency, either independently or under the direction of a qualified engineer. 獨自或在合資格工程師指導下，擔任技術工作，如市場研究、產品開發及流程改善。
216	Product/ Packaging Development Technician 產品／包裝發展技術員	Assists in design and development of plastics products and/or packaging, harmonizing technical, aesthetic and economic features including preparation of product and package drawings, and materials specifications, and using 3D printing technology in product development. 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，用立體打印技術協助產品發展。

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TECHNICIAN / SUPERVISORY LEVEL (CONTINUED) 技術員／督導級 (續)		
217	Laboratory/ Materials Technician 實驗室／材料技術員	Formulates and assists in preparation of testing materials; assesses quality by laboratory analyses and tests of metals/plastics and related samples in accordance with specifications. 制定及協助製備材料，按照規格於實驗室內分析及測試金屬／塑膠及有關樣本，以評估品質。
218	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。
219	CAD or CAM Technician (Tooling/3D Printing) 電腦輔助設計或電腦輔助生產技術員 (工模／立體打印)	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, and 3D printing prototype 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及立體打印原型作生產塑膠產品及其配件之用。
220	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。
CRAFTSMAN LEVEL 技工級		
301	Machinist 機床工	Sets up and operates common machine tools such as lathe, milling machine and surface grinding machine to produce components according to drawings and specifications. 裝設及操作一般機床，例如車床、銑床及平面磨床，並按照圖則及規格，製造配件。
302	Precision Machinist 精密加工機床工	Sets up and operates precision and CNC machine tools, such as jig boring/grinding machine, EDM wirecut/diesinking machine, CNC milling machine and CNC lathe, to produce components according to drawings and specifications. 裝設及操作精密及電腦數控機床，例如座標鏜床／磨床、火花線切機／火花電蝕機、電腦數控銑床及電腦數控車床，以按照圖則及規格，製造配件。
303	Machine Setter 機器調校工	Sets up, for others to operate, metal working machines such as automatic lathes to produce components according to drawings and specifications. 裝設金屬加工機床，例如自動車床，供其他工人操作，以生產符合圖則及規格的配件。

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CRAFTSMAN LEVEL (CONTINUED) 技工級 (續)		
304	Mould/ Die and Tool Maker 製模及工具技工	Marks out, machines, fits, assembles and finishes metal parts to make, test, and repair plastics moulds/dies and special tools according to drawings and other specifications. 按照圖則及其他規格，劃線、機械加工、打磨、裝配及處理金屬配件，以製造、測試及修理塑膠模／五金模具及特別工具。
305	Fixture Fabricator 夾具製造工	Inspects, tests, repairs, calibrates and maintains mechanical/electrical instruments including the making of replacement fixtures and parts as necessary. 檢查、測試、修理、標正及保養機械／電氣儀器，包括製造所需的夾具和替換零件。
306	Electrician 電器技工	Installs electrical wiring of all types at low voltage (i.e. not exceeding 1 000 Volts) and tests, maintains and repairs low voltage fixed electrical installation in accordance with regulations and specifications under the direction of a supervisory grade of employee. Installs, tests, services and repairs electrical systems/electronic devices of machinery and equipment; undertakes maintenance of plant electrical wiring systems. 在管理級人員指導下，按照規例及規格敷設各類不超過 1 000 伏特低電壓的電氣佈線，並測試及維修低壓固定電力裝置。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。
307	Mechanical Fitter 機械打磨裝配工	Fits, assembles, erects, installs, services, repairs and tests mechanical plant, machinery and parts according to drawings and specifications; keeps records of work. 按照圖則及規格，打磨、裝配、安裝、維修及測試廠房機械裝置、機器及零件；並保存工作記錄。
308	Moulder and Core Maker (Sand) 砂模及模心製造工	Makes sand moulds and cores for castings, constructs runners, risers and feeders, and uses various foundry equipment and machinery. 製造鑄件用的砂模及模心，構築流道、升流管及進料器，並使用各類鑄造用的設備及機器。
309	Furnaceman 熔爐工	Operates melting furnaces to produce castings. 操作各種熔爐以生產鑄鐵。
310	Electric Arc and Gas Welder 電焊氣焊工	Joins, cuts and deposits metals by electric-arc or flame of oxy-acetylene or other gases, or by other welding and brazing processes. 使用電弧、氧乙炔焰、其他氣體、其他焊接法或黃銅焊接法，以接合、割切金屬及補焊。
311	Sheetmetal Fabricator 薄片金屬構造工	Makes sheetmetal articles of thickness not exceeding 10 s.w.g. (or 3.2 mm) such as containers, ducts, ornaments either by hand or machine, assembles, joins and repairs components by welding, brazing, soldering and riveting according to specifications. 按照規格，利用手工具或機器製造厚度不超過 10 s.w.g. (或 3.2 毫米) 的薄金屬片器具，如容器、槽管及裝飾品；使用溶焊、銅焊、錫焊及鉚釘技術裝配、接合及修理該等器具。
312	Steel Fabricator (Thick Plate) 鋼板構造工	Constructs, assembles, inspects and repairs boilers, tanks, and articles of heavy steel sections above 10 s.w.g. (or 3.2 mm thick). 建造、裝配、查驗及修理用超過 10 s.w.g. (或 3.2 毫米) 鋼板製成的鍋爐、水箱及其他重型鋼件。

<u>Job Code</u> 職稱編號	<u>Principal Job Title</u> 主要職稱	<u>Job Description</u> 工作說明
CRAFTSMAN LEVEL (CONTINUED) 技工級 (續)		
313	Plumber and Pipe Fitter 喉管工	Assembles, installs and maintains pipes, fittings and fixtures for supplying air, gas, steam, water and other fluids. 裝配、安裝及保養喉管、配件及夾具，以供應空氣、氣體、蒸氣、水及其他流體。
314	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 and other products from drawings and specifications. 按照圖則及規格，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，以便構造或修改塑料製品及其他產品的模型、樣本及／或生產原型。
315	Electroplating and Metal Coating Worker 電鍍及金屬塗層工	Carries out surface treatment of objects by: (1) electro-chemical and chemical processes including deposition of common metals by electrolyses, electro-chemical polishing, galvanizing, etching and anodising; and (2) metal spraying. 使用下列方法對物體進行表面處理： (1) 電化及化學程序，包括以電解、電化磨光、鍍鋅、腐蝕及陽極氧化將一般金屬沉積；及 (2) 噴鍍金屬。
316	Painter 髹漆工	Prepares and mixes paint appropriate to the surface to be painted and prepares surfaces for painting; applies paint by spraying or brushing. 配製及混合油漆以配合須髹漆的表面，並處理表面以便髹漆；用噴油法或手掃法塗漆。
317	Metal Printing Craftsman 金屬印製技工	Sets, controls, and operates printing machines to print metals and related products. 調校、控制與操作金屬印製機，以便在金屬及有關產品上進行印刷。
318	Rolling Mill/ Extrusion Press Craftsman 輾壓／擠壓技工	Sets, controls and operates rolling mill and/or extrusion press. 調校、控制與操作輾壓機及／或擠壓機。
319	Heat Treatment Craftsman 熱處理技工	Sets up and operates heat treatment furnaces, baths and quenching equipment to alter physical and chemical properties of metal parts according to specifications for heat treatment processes such as hardening, tempering, annealing, case-hardening, and normalising. 調校及操作熱處理爐、熱處理槽及驟冷設備，從而改變金屬零件的物理及化學特性，以符合熱處理程序的規格，例如淬火、回火、退火、表面淬火及正火。
320	Edging/Shaping Craftsman 車邊工	Shapes the lenses to fit into the prescribed spectacle frame and comply with the optometrical requirement. 根據驗光度數要求，對眼鏡片加工車邊以便合適裝配於顧客選用的眼鏡框內。
323	Plastics Machine Setter 調機技工	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，例如注塑機，吹塑機，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。

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CRAFTSMAN LEVEL (CONTINUED) 技工級 (續)		
324	Sizing (Plastics/ Fabric) 裁床技工 (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。
325	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	Semi-skilled Machine Operator 機器操作工	Operates one or more of the following machines: drilling machine, capstan (turret) lathe, sawing machine, shearing machine, punching machine, rolling machine, grinding machine, or automatic machine which have been set up by other persons. 操作下列已由他人校妥的一種或多種機床：鑽床、六角車床、鋸床、剪床、打孔機、轉軸機、磨床或自動機床。
402	Fettler 鑄件整理工	Removes runners, risers, cores, flash metal at joints, surface imperfection etc. from castings. 除去鑄成品的水口、模心、不平滑的接口及表面。
403	Pourer 澆鑄工	Pours molten metal into moulds. 負責將熔化的金屬倒入模型。
404	Die-casting Machine Operator 金屬壓鑄機操作工	Operates a die-casting machine. 操作金屬壓鑄機器。
405	Electric-resistance Welder 電阻焊接工	Welds metal parts by means of resistance welding machines (i.e. butt, spot and seam welding machines). 使用電阻焊機（例如對頭焊機、點焊機及接縫焊機）焊接。
406	Polishing Worker 磨光工	Buffers and polishes metal. 磨光金屬製品。
407	Striker 打鐵工	Uses hammer to assist a blacksmith to form and shape articles. 運用鐵鎚協助打鐵匠工作。
408	Press Operator 啤機操作工	Operates a power press to produce metal articles. 操作五金啤機以生產金屬品。
409	Paint Spraying Gun Operator; Zinc Sprayer 噴漆/噴鋅工	Operates spray-gun to spray onto metallic surface to build up its resistance against corrosion. 操控噴漆槍，將一層金屬噴在金屬的表面，以加強抵抗腐蝕的能力。
410	Semi-skilled Electro-plating and Metal Coating Worker 電鍍及金屬塗層半技工	Assists skilled workers in the process of metal coating. 協助技工進行電鍍金屬表面電化處理的工作。
411	Quality Control Operator 品質控制操作工	Assists in the routine examination of components or finished products according to predetermined standards. 協助日常的檢查工作，以確定配件或製成品符合既定標準。
412	Assembler 裝配工	Assembles components into finished products in accordance with specific job instructions. 按照既定的工作指示裝配配件使成製成品。
413	Injection Moulding Machine Operator 注塑機操作工	Operates a plastic injection moulding machine to produce plastic components. 操作塑膠注塑機以生產塑膠零件。

<u>Job Code</u> 職稱編號	<u>Principal Job Title</u> 主要職稱	<u>Job Description</u> 工作說明
OPERATIVE LEVEL (CONTINUED) 操作工級 (續)		
414	Crane Operator 起重機操作工	Operates a crane to lift, move and position equipment, machinery or materials. 使用起重機吊起、搬運及安放設備、機械或物料。
415	Polishing Worker (Lens) 磨鏡片工	Bufs and polishes lens for spectacle to comply with the optometrical requirement. 打磨及拋光眼鏡片以符合驗光度數要求。
416	Blow Moulding Machine Operator 吹塑機工	Operates a blow moulding machine. 操作吹塑機。
417	Film Blowing Machine Operator 吹膜機工	Operates a film blowing machine. 操作塑膠吹膜機。
418	Vacuum Forming Machine Operator 真空吸塑機工	Operates a vacuum forming machine. 操作真空吸塑機。
419	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。
420	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。
421	Printing Operator 印刷工	Prints plastics and related products by operating printing machines such as pad printer, gravure printer, screen printing machines etc. 操作移印機、凹版機、絲網印刷機等機器，以印刷塑膠及有關產品。
422	Seamstress/ Sewing Machine Operator 縫工	Sews articles of various fabrics by hand or machines. 用手或針車縫製各類纖維物品。
UNSKILLED LEVEL 非技術工人級		
501	General Worker 雜工	Undertakes general cleaning work, removal of industrial waste from machines and light material handling, or other manual work such as loading and unloading goods, sprue removal, stamping, packing etc. 擔任各類清潔工作，清理機床上的工業廢料及運送輕物料，或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: Manpower Statistics

表1：人力統計數字

Job Category 技能類別	Principal Job 主要職務	Number of Employees 僱員人數	Number of Trainees 受訓者人數	Number of Vacancies 空缺額	Forecasted Number of Posts as at July 2019 預計在2019年 7月的僱員人數
Technologist / Managerial Level 技師／經理級	101 Mechanical Engineer 機械工程師	949	8	13	960
	102 Manufacturing/ Production/ Industrial Engineer 製造／生產／工業工程師	678	0	0	678
	103 Materials Engineer/ Metallurgist 用料工程師／冶金技師	87	0	3	90
	104 Electrical Engineer 電機工程師	572	2	8	580
	105 Electronics Engineer 電子工程師	282	0	12	291
	106 Technical Services Engineer 技術支援工程師	1405	0	3	1408
	107 Technical Sales/ Marketing Manager 技術營銷／市務／市場經理	1549	10	7	1556
	108 Logistics Manager 物流經理	412	0	3	415
	109 Merchandising Manager 採購經理	1137	0	3	1140
	110 Training Manager 訓練經理	10	0	0	10
	111 Engineering Manager 工程經理	296	3	4	300
	112 Factory Manager 工廠經理	163	0	0	163
	113 Production Manager 生產部經理	207	1	0	207
	114 Q.C./ Q.A. Manager/ Engineer 品質控制／保證經理／工程師	566	0	6	571
	115 Product/Graphic Designer 產品／平面設計師	95	0	0	95
	116 Product Engineer 產品工程師	280	0	0	280
	117 CAD, CAM or CAE Engineer/ Tooling Engineer 電腦輔助設計、電腦輔助生產或電 腦輔助工程工程師／工具工模工程 師	101	0	1	102
	118 Project Engineer 項目策劃及統籌工程師	466	0	1	467
	119 Costing Engineer 成本工程師	49	0	0	49
	120 Processing Engineer 加工工程師	31	0	0	31
	Sub-total 小計	9335	24	64	9393

Job Category 技能類別	Principal Job 主要職務	Number of Employees 僱員人數	Number of Trainees 受訓者人數	Number of Vacancies 空缺額	Forecasted Number of Posts as at July 2019 預計在2019年7月的僱員人數
Technician / Supervisory Level 技術員／督導級	201 Mechanical Draftsman 機械繪圖員	35	0	2	37
	202 Mechanical Engineering Technician 機械工程技術員	2773	0	26	2798
	203 Manufacturing/ Production/ Industrial Engineering Technician 製造／生產／工業工程技術員	216	3	2	221
	204 Electrical Engineering Technician 電機工程技術員	407	13	19	426
	205 Foreman/Supervisor 管工／監督	217	0	19	236
	206 Electronics Technician 電子技術員	565	0	2	567
	207 Technical Services Technician 支援技術員	1243	36	18	1259
	208 Technical Sales/ Marketing Executive 技術營銷／市務主任	3131	0	26	3157
	209 Co-ordinator 協理員／聯絡員	717	2	16	732
	210 Logistics Executive/ Supervisor 物流主任	1148	0	89	1237
	211 Merchandiser 採購員	5791	0	71	5862
	212 Production Supervisor 生產主管	247	2	0	247
	213 Q.C./ Q.A. Supervisor/ Technician 品質控制／保證主管／技術員	697	0	1	698
	214 Training Officer 訓練主任	44	2	2	46
	215 Research and Development Technician 研究及發展技術員	117	0	0	117
	216 Product/ Packaging Development Technician 產品／包裝發展技術員	278	2	0	278
	217 Laboratory/ Materials Technician 實驗室／材料技術員	959	6	18	982
	218 Tooling Technician 工具工模技術員	72	0	0	72
	219 CAD or CAM Technician (Tooling/ 3D Printing) 電腦輔助設計或電腦輔助生產技術員（工模／立體打印）	95	0	5	100
	220 Production Planner 生產策劃員	578	0	5	583
Sub-total 小計		19330	66	321	19655

Job Category 技能類別	Principal Job 主要職務	Number of Employees 僱員人數	Number of Trainees 受訓者人數	Number of Vacancies 空缺額	Forecasted Number of Posts as at July 2019 預計在2019年 7月的僱員人數	
Craftsman Level 技工級	301 Machinist 機床工	343	1	3	346	
	302 Precision Machinist 精密加工機床工	36	0	1	37	
	303 Machine Setter 機器調校工	36	0	0	36	
	304 Mould/ Die and Tool Maker 製模及工具技工	217	0	0	217	
	305 Fixture Fabricator 夾具製造工	817	2	9	826	
	306 Electrician 電器技工	639	6	5	644	
	307 Mechanical Fitter 機械打磨裝配工	2364	35	21	2385	
	308 Moulder and Core Maker (Sand) 砂模及模心製造工	2	0	0	2	
	309 Furnaceman 熔爐工	21	0	0	21	
	310 Electric Arc and Gas Welder 電焊氣焊工	421	7	22	442	
	311 Sheetmetal Fabricator 薄片金屬構造工	159	0	4	163	
	312 Steel Fabricator (Thick Plate) 鋼板構造工	61	3	4	65	
	313 Plumber and Pipe Fitter 喉管工	123	3	0	121	
	314 Pattern/Model/Prototype Maker 樣本/模型/生產原型製造工	135	0	0	135	
	315 Electroplating and Metal Coating Worker 電鍍及金屬塗層工	75	0	0	75	
	316 Painter 髹漆工	53	1	0	53	
	317 Metal Printing Craftsman 金屬印製技工	23	0	0	23	
	318 Rolling Mill/Extrusion Press Craftsman 軋壓/擠壓技工	33	0	0	33	
	319 Heat Treatment Craftsman 熱處理技工	6	0	0	6	
	320 Edging/Shaping Craftsman 車邊工	89	0	0	89	
	323 Plastics Machine Setter 調機技工	34	0	0	34	
	324 Sizing (Plastics/ Fabric) 裁床技工(塑膠/布料)	16	0	0	16	
	325 Quality Control Inspector 品質檢查工	301	1	0	302	
		Sub-total 小計	6004	59	69	6071

Job Category 技能類別	Principal Job 主要職務	Number of Employees 僱員人數	Number of Trainees 受訓者人數	Number of Vacancies 空缺額	Forecasted Number of Posts as at July 2019 預計在2019年7月的僱員人數
Operative Level 操作工級	401 Semi-skilled Machine Operator 機器操作工	651	8	45	696
	402 Fetter 鑄件整理工	4	0	0	4
	403 Pourer 澆鑄工	10	0	0	10
	404 Die-casting Machine Operator 金屬壓鑄機操作工	14	0	0	14
	405 Electric-resistance Welder 電阻焊接工	95	0	0	95
	406 Polishing Worker 磨光工	24	0	0	24
	407 Striker 打鐵工	13	0	0	13
	408 Press Operator 啤機操作工	268	0	10	278
	409 Paint Spraying Gun Operator/ Zinc Sprayer 噴漆/噴鋅工	31	0	19	50
	410 Semi-skilled Electro-plating and Metal Coating Worker 電鍍及金屬塗層半技工	10	0	0	10
	411 Quality Control Operator 品質控制操作工	363	0	5	368
	412 Assembler 裝配工	800	14	8	808
	413 Injection Moulding Machine Operator 注塑機操作工	140	0	0	140
	414 Crane Operator 起重機操作工	49	0	0	49
	415 Polishing Worker (Lens) 磨鏡片工	37	0	0	37
	416 Blow Moulding Machine Operator 吹塑機工	20	0	0	20
	417 Film Blowing Machine Operator 吹膜機工	60	0	3	63
	418 Vacuum Forming Machine Operator 真空吸塑機工	7	0	0	7
	419 Other Plastics Processing Machine Operator 其他塑膠加工機操作工	292	6	2	294
	420 Power Press Operator 動力沖壓機操作工	0	0	0	0
	421 Printing Operator 印刷工	68	4	1	69
	422 Seamstress/ Sewing Machine Operator 縫工	8	0	0	8
	Sub-total 小計	2964	32	93	3057
Unskilled Level 非技術工人級	501 General Worker 雜工	1280	0	6	1286
	Sub-total 小計	1280	0	6	1286
Total 總計		38913	181	553	39462

Table 2: Number of Employees at Time of Survey (by Principal Job by Branch)
表2: 按主要職務及門類劃分在統計日期的僱員人數

Job Category 技能類別	Principal Job 主要職務	Branch 門類																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Technologist / Managerial Level 技師/經理級	101 Mechanical Engineer 機械工程師	19	8	6	104	5	4	189	379	145	88	0	0	0	0	0	1	0	1
	102 Manufacturing/ Production/ Industrial Engineer 製造/生產/工業工程師	16	2	15	17	0	20	0	100	10	29	1	3	3	7	18	283	143	11
	103 Materials Engineer/ Metallurgist 物料工程師/冶金技師	0	0	0	2	0	0	0	7	0	57	21	0	0	0	0	0	0	0
	104 Electrical Engineer 電機工程師	9	6	2	0	3	65	49	166	222	37	0	2	0	0	2	8	0	1
	105 Electronics Engineer 電子工程師	3	0	2	2	0	17	6	48	0	74	0	0	0	0	0	116	13	1
	106 Technical Services Engineer 技術支援工程師	46	2	0	5	4	1	454	163	580	9	0	0	0	0	0	37	21	83
	107 Technical Sales/ Marketing Manager 技術營銷/市場經理	0	18	13	10	8	24	39	1104	26	4	0	0	1	4	3	222	66	7
	108 Logistics Manager 物流經理	0	4	1	4	3	0	23	149	2	0	0	0	1	0	0	159	55	11
	109 Merchandising Manager 採購經理	0	0	19	26	10	4	19	581	2	0	0	0	5	3	2	327	111	28
	110 Training Manager 訓練經理	0	0	0	1	1	0	3	2	0	2	0	0	0	0	0	1	0	0
	111 Engineering Manager 工程經理	9	1	5	50	0	10	41	83	0	13	0	0	1	0	0	79	3	1
	112 Factory Manager 工廠經理	0	5	14	11	4	20	4	5	0	0	0	0	0	0	5	92	3	0
	113 Production Manager 生產部經理	0	17	18	11	5	16	15	65	0	7	0	0	2	3	5	32	10	1
	114 Q.C./ Q.A. Manager/ Engineer 品質控制/保證經理/工程師	0	11	6	26	0	4	11	0	331	0	0	2	5	0	5	151	9	5
	115 Product/Graphic Designer 產品/平面設計師	0	0	6	1	0	1	21	0	3	0	0	0	1	0	1	53	4	4
	116 Product Engineer 產品工程師	0	0	0	0	0	0	10	0	0	3	12	2	1	0	2	194	45	11
	117 CAD, CAM or CAE Engineer/ Tooling Engineer 電腦輔助設計、電腦輔助生產或電腦輔助工程師/工具工程師	0	0	0	0	3	1	0	0	0	1	1	0	1	0	14	61	5	14
	118 Project Engineer 項目策劃及統籌工程師	0	0	0	0	0	0	0	39	0	17	2	2	5	0	0	274	101	26
	119 Costing Engineer 成本工程師	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	43	3	0
	120 Processing Engineer 加工工程師	0	1	0	0	0	0	0	0	0	0	1	1	0	0	0	23	5	0
Sub-total 小計	9335	102	75	107	270	46	187	891	2884	1378	305	17	12	27	17	59	2156	597	205

Job Category 技能類別	Principal Job 主要職務	Overall 總計	Branch 門類																	
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Technician / Supervisory Level 技術員/督導級	201 Mechanical Draftsman 機械繪圖員	35	0	0	0	5	0	16	5	0	0	4	0	0	0	0	5	0	0	
	202 Mechanical Engineering Technician 機械工程技術員	2773	42	40	26	130	0	25	2064	295	76	50	0	2	0	13	0	2	8	
	203 Manufacturing/ Production/ Industrial Engineering Technician 製造/生產/工業工程技術員	216	0	16	17	25	0	35	0	0	0	13	0	0	0	15	59	35	1	
	204 Electrical Engineering Technician 電機工程技術員	407	14	16	8	0	0	81	93	134	30	21	0	0	0	6	0	0	4	
	205 Foreman/Supervisor 管工/監督	565	58	31	42	28	7	37	230	0	40	9	2	4	4	11	28	14	4	
	206 Electronics Technician 電子技術員	217	34	0	0	5	0	12	26	31	0	45	0	0	0	1	9	40	4	
	207 Technical Services Technician 支援技術員	1243	9	0	0	10	8	6	358	394	429	28	0	0	0	0	0	1	0	
	208 Technical Sales/ Marketing Executive 技術營銷/市場主任	3131	0	12	40	32	16	12	32	2668	26	2	0	0	2	0	3	192	58	36
	209 Co-ordinator 協理員/聯絡員	717	0	1	48	6	23	10	59	377	29	3	1	0	8	1	1	94	48	8
	210 Logistics Executive/ Supervisor 物流主任	1148	0	5	25	4	6	4	46	587	24	0	0	0	1	1	1	302	124	18
	211 Merchandiser 採購員	5791	0	6	138	5	40	52	176	3791	34	0	1	0	6	13	13	933	495	88
	212 Production Supervisor 生產主管	247	0	11	7	4	6	6	3	200	0	0	0	0	0	0	9	1	0	0
	213 Q.C./ Q.A. Supervisor/ Technician 品質控制/保證主管/技術員	697	0	18	18	7	1	22	0	16	298	0	0	2	5	0	2	268	27	13
	214 Training Officer 訓練主任	44	0	0	0	1	1	0	5	14	0	23	0	0	0	0	0	0	0	0
	215 Research and Development Technician 研究及發展技術員	117	0	0	0	0	0	0	1	30	0	81	0	0	0	0	0	5	0	0
	216 Product/ Packaging Development Technician 產品/包裝發展技術員	278	0	0	0	0	2	0	0	0	0	0	0	1	4	1	10	237	23	0
	217 Laboratory/ Materials Technician 實驗室/材料技術員	959	0	3	0	0	0	0	0	0	0	919	15	0	0	0	6	3	0	13
	218 Tooling Technician 工具工模技術員	72	0	2	0	0	10	0	0	0	0	2	1	1	5	0	4	44	3	0
	219 CAD or CAM Technician (Tooling/ 3D Printing) 電腦輔助設計或電腦輔助生產技術員 (工模/立體打印)	95	0	0	0	0	0	0	0	0	0	1	0	4	1	0	0	74	8	7
	220 Production Planner 生產策劃員	578	0	2	0	0	0	0	0	0	51	0	0	2	7	5	13	283	135	75
Sub-total 小計	19330	157	163	369	262	120	318	3098	8588	1905	297	7	21	41	33	133	2554	985	279	

Job Category 技能類別	Principal Job 主要職務	Branch 門類																		Overall 總計
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Craftsman Level 技工級	301	Machinist 機床工	25	8	137	58	0	2	65	32	0	16	0	0	0	0	0	0	0	18
	302	Precision Machinist 精密加工機床工	0	0	18	3	10	0	0	0	0	5	0	0	0	0	0	0	0	0
	303	Machine Setter 機器調校工	0	2	28	2	0	2	0	0	0	2	0	0	0	0	0	0	0	0
	304	Mould/Die and Tool Maker 製模及工具技工	0	9	36	142	0	0	0	0	0	0	0	7	0	8	0	2	6	0
	305	Fixture Fabricator 夾具製造工	103	10	23	2	0	1	422	253	0	0	0	0	0	0	0	0	3	0
	306	Electrician 電器技工	51	18	7	10	0	86	293	156	0	2	0	6	0	8	0	0	2	0
	307	Mechanical Fitter 機械打磨強配工	204	15	89	127	2	33	1618	276	0	0	0	0	0	0	0	0	0	0
	308	Moulder and Core Maker (Sand) 砂模及核心製造工	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
	309	Furnaceman 熔爐工	3	11	0	0	0	1	6	0	0	0	0	0	0	0	0	0	0	0
	310	Electric Arc and Gas Welder 電焊氣焊工	2	12	204	46	0	6	151	0	0	0	0	0	0	0	0	0	0	0
	311	Sheetmetal Fabricator 薄片金屬構造工	0	0	42	5	6	38	68	0	0	0	0	0	0	0	0	0	0	0
	312	Steel Fabricator (Thick Plate) 鋼板構造工	0	0	8	5	0	0	48	0	0	0	0	0	0	0	0	0	0	0
	313	Plumber and Pipe Fitter 喉管工	0	0	0	0	0	0	123	0	0	0	0	0	0	0	0	0	0	0
	314	Pattern/Model/Prototype Maker 樣本/模型/生產原型製造工	0	0	23	1	1	0	0	0	72	1	3	0	0	1	19	14	0	0
	315	Electroplating and Metal Coating Worker 電鍍及金屬塗層工	0	22	35	0	10	8	0	0	0	0	0	0	0	0	0	0	0	0
	316	Painter 髹漆工	10	0	0	0	0	2	41	0	0	0	0	0	0	0	0	0	0	0
	317	Metal Printing Craftsman 金屬印製技工	0	0	12	1	0	10	0	0	0	0	0	0	0	0	0	0	0	0
	318	Rolling Mill/Extrusion Press Craftsman 軋壓/擠壓技工	0	17	14	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
	319	Heat Treatment Craftsman 熱處理技工	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0
	320	Edging/Shaping Craftsman 車邊工	0	0	0	0	89	0	0	0	0	0	0	0	0	0	0	0	0	0
	323	Plastics Machine Setter 調機技工	0	0	0	0	0	0	0	0	0	0	0	8	0	15	0	5	6	0
	324	Sizing (Plastics/Fabric) 裁床技工(塑膠/布料)	0	0	0	0	0	0	0	0	0	0	0	0	4	12	0	0	0	0
	325	Quality Control Inspector 品質檢查工	0	0	4	0	1	0	0	0	0	202	0	3	1	0	53	3	11	23
		Sub-total 小計	398	124	680	402	121	191	2841	717	274	26	3	24	8	115	17	21	37	37

Job Category 技能類別	Principal Job 主要職務	Branch 門類																		Overall 總計
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Operative Level 操作工級	401	Semi-skilled Machine Operator 機器操作工	119	64	178	47	10	38	195	0	0	0	0	0	0	0	0	0	0	651
	402	Fettler 鑄件整理工	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
	403	Pourer 澆鑄工	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
	404	Die-casting Machine Operator 金屬鑄機操作工	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14
	405	Electric-resistance Welder 電阻焊接工	0	0	88	0	0	0	7	0	0	0	0	0	0	0	0	0	0	95
	406	Polishing Worker 磨光工	0	4	0	10	0	0	10	0	0	0	0	0	0	0	0	0	0	24
	407	Striker 打鐵工	0	0	11	0	0	0	2	0	0	0	0	0	0	0	0	0	0	13
	408	Press Operator 啤機操作工	0	86	139	12	3	26	2	0	0	0	0	0	0	0	0	0	0	268
	409	Paint Spraying Gun Operator/ Zinc Sprayer 噴漆/噴鋅工	0	0	0	0	0	5	26	0	0	0	0	0	0	0	0	0	0	31
	410	Semi-skilled Electro-plating and Metal Coating Worker 電鍍及金屬塗層半技工	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
	411	Quality Control Operator 品質控制操作工	0	25	24	4	4	50	25	24	204	0	0	0	0	0	0	0	0	363
	412	Assembler 裝配工	46	6	142	58	18	366	17	39	0	0	8	6	0	38	40	16	0	800
	413	Injection Moulding Machine Operator 注塑機操作工	0	0	0	0	0	0	0	0	0	2	22	23	0	76	0	0	17	140
	414	Crane Operator 起重機操作工	0	26	0	0	0	0	23	0	0	0	0	0	0	0	0	0	0	49
	415	Polishing Worker (Lens) 磨鏡片工	0	0	0	0	37	0	0	0	0	0	0	0	0	0	0	0	0	37
	416	Blow Moulding Machine Operator 吹塑機工	0	0	0	0	0	0	0	0	0	0	9	0	0	11	0	0	0	20
	417	Film Blowing Machine Operator 吹膜機工	0	0	0	0	0	0	0	0	0	0	5	0	46	9	0	0	0	60
	418	Vacuum Forming Machine Operator 真空吸塑機工	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	7
	419	Other Plastics Processing Machine Operator 其他塑膠加工機操作工	0	0	0	0	0	0	0	0	0	8	2	15	54	155	0	16	42	292
	420	Power Press Operator 動力沖壓機操作工	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
421	Printing Operator 印刷工	0	0	0	0	0	0	0	0	0	0	0	0	18	50	0	0	0	68	
422	Seamstress/ Sewing Machine Operator 縫工	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	8	
	Sub-total 小計	165	249	582	131	72	485	307	63	204	0	10	54	44	118	349	40	32	2984	
Unskilled Level 非技術工人級	501	General Worker 雜工	13	12	136	4	11	16	274	211	43	15	2	29	9	187	130	100	1280	
		Sub-total 小計	13	12	136	4	11	16	274	211	43	15	2	29	9	187	130	100	1280	
	Total 總計		835	623	1874	1069	370	1197	7411	12463	3804	643	39	140	129	194	843	4897	647	

Table 3: Percentage Distribution of Average Monthly Income Range

表3: 根據每月平均薪酬劃分的僱員分布情況

Job Category 技能類別	Principal Job 主要職務	Total No. of Employees 僱員人數	Average Monthly Income Range 每月平均薪酬							
			\$10,000 or below	\$10,001 - \$15,000	\$15,001 - \$20,000	\$20,001 - \$25,000	\$25,001 - \$30,000	\$30,001 - \$40,000	Over \$40,000	Total 總計
Technologist / Managerial Level 技師／經理級	101 Mechanical Engineer 機械工程師	949	0.0%	0.1%	0.0%	18.4%	15.4%	31.7%	34.4%	100.0%
	102 Manufacturing/ Production/ Industrial Engineer 製造／生產／工業工程 師	678	0.0%	0.0%	3.4%	32.6%	47.7%	8.5%	7.9%	100.0%
	103 Materials Engineer/ Metallurgist 用料工程師／冶金技師	87	0.0%	0.0%	10.0%	0.0%	61.7%	26.7%	1.7%	100.0%
	104 Electrical Engineer 電機工程師	572	0.0%	0.0%	4.8%	7.0%	42.4%	32.1%	13.8%	100.0%
	105 Electronics Engineer 電子工程師	282	0.0%	0.0%	6.3%	8.9%	35.9%	41.7%	7.3%	100.0%
	106 Technical Services Engineer 技術支援工程師	1405	0.0%	0.3%	2.8%	16.9%	16.8%	62.4%	0.7%	100.0%
	107 Technical Sales/ Marketing Manager 技術營銷／市務／市場 經理	1549	0.0%	0.0%	5.9%	7.8%	72.9%	11.9%	1.4%	100.0%
	108 Logistics Manager 物流經理	412	0.0%	0.0%	1.6%	20.2%	44.7%	33.2%	0.3%	100.0%
	109 Merchandising Manager 採購經理	1137	0.0%	0.0%	0.3%	9.7%	55.1%	31.1%	3.8%	100.0%
	110 Training Manager 訓練經理	10	0.0%	0.0%	0.0%	11.1%	11.1%	33.3%	44.4%	100.0%
	111 Engineering Manager 工程經理	296	0.0%	0.0%	4.5%	11.4%	12.4%	57.7%	13.9%	100.0%
	112 Factory Manager 工廠經理	163	0.0%	0.0%	6.2%	60.8%	13.8%	15.4%	3.8%	100.0%
	113 Production Manager 生產部經理	207	0.0%	0.0%	7.6%	27.0%	42.7%	16.8%	5.9%	100.0%
	114 Q.C./ Q.A. Manager/ Engineer 品質控制／保證經理／ 工程師	566	0.0%	0.2%	3.6%	43.9%	38.9%	12.3%	1.1%	100.0%
	115 Product/Graphic Designer 產品／平面設計師	95	0.0%	0.0%	12.6%	78.9%	2.1%	6.3%	0.0%	100.0%
	116 Product Engineer 產品工程師	280	0.0%	0.0%	2.1%	68.2%	23.3%	6.4%	0.0%	100.0%
	117 CAD, CAM or CAE Engineer/ Tooling Engineer 電腦輔助設計、電腦輔 助生產或電腦輔助工程 工程師／工具工模工程 師	101	0.0%	0.0%	28.9%	21.1%	35.5%	13.2%	1.3%	100.0%
	118 Project Engineer 項目策劃及統籌工程師	466	0.0%	0.5%	10.5%	49.0%	31.5%	5.3%	3.3%	100.0%
	119 Costing Engineer 成本工程師	49	0.0%	0.0%	13.3%	30.0%	46.7%	10.0%	0.0%	100.0%
	120 Processing Engineer 加工工程師	31	0.0%	0.0%	29.2%	58.3%	12.5%	0.0%	0.0%	100.0%
Sub-total 小計		9335	0.0%	0.1%	4.1%	21.1%	40.0%	27.9%	6.8%	100.0%

Job Category 技能類別	Principal Job 主要職務	Total No. of Employees 僱員人數	Average Monthly Income Range 每月平均薪酬							
			\$10,000 or below	\$10,001 - \$15,000	\$15,001 - \$20,000	\$20,001 - \$25,000	\$25,001 - \$30,000	\$30,001 - \$40,000	Over \$40,000	Total 總計
Technician / Supervisory Level 技術員／督導 級	201 Mechanical Draftsman 機械繪圖員	35	0.0%	2.9%	31.4%	51.4%	14.3%	0.0%	0.0%	100.0%
	202 Mechanical Engineering Technician 機械工程技術員	2773	0.0%	0.5%	20.0%	74.9%	0.6%	3.1%	1.0%	100.0%
	203 Manufacturing/ Production/ Industrial Engineering Technician 製造／生產／工業工程技術員	216	0.0%	20.9%	25.9%	44.9%	0.0%	7.6%	0.6%	100.0%
	204 Electrical Engineering Technician 電機工程技術員	407	0.0%	0.5%	11.8%	75.6%	8.7%	0.0%	3.4%	100.0%
	205 Foreman/ Supervisor 管工／監督	565	0.0%	0.4%	26.9%	55.8%	15.1%	0.0%	1.8%	100.0%
	206 Electronics Technician 電子技術員	217	0.0%	4.5%	12.7%	77.7%	0.0%	0.0%	5.1%	100.0%
	207 Technical Services Technician 支援技術員	1243	0.0%	0.6%	44.5%	20.4%	34.1%	0.4%	0.0%	100.0%
	208 Technical Sales/ Marketing Executive 技術營銷／市務主任	3131	0.0%	10.7%	44.0%	44.3%	0.8%	0.1%	0.0%	100.0%
	209 Co-ordinator 協理員／聯絡員	717	0.0%	23.3%	44.2%	32.1%	0.4%	0.0%	0.0%	100.0%
	210 Logistics Executive/ Supervisor 物流主任	1148	0.0%	9.6%	52.9%	32.5%	5.0%	0.0%	0.0%	100.0%
	211 Merchandiser 採購員	5791	0.0%	6.5%	58.1%	35.0%	0.2%	0.1%	0.0%	100.0%
	212 Production Supervisor 生產主管	247	0.0%	0.0%	89.7%	9.1%	1.3%	0.0%	0.0%	100.0%
	213 Q.C./ Q.A. Supervisor/ Technician 品質控制／保證主管／技術員	697	0.0%	11.4%	41.5%	45.5%	1.1%	0.6%	0.0%	100.0%
	214 Training Officer 訓練主任	44	0.0%	0.0%	2.3%	16.3%	0.0%	60.5%	20.9%	100.0%
	215 Research and Development Technician 研究及發展技術員	117	0.0%	0.0%	7.7%	32.5%	59.8%	0.0%	0.0%	100.0%
	216 Product/ Packaging Development Technician 產品／包裝發展技術員	278	0.0%	8.0%	54.0%	37.9%	0.0%	0.0%	0.0%	100.0%
	217 Laboratory/ Materials Technician 實驗室／材料技術員	959	0.0%	14.2%	27.1%	53.1%	5.6%	0.0%	0.0%	100.0%
	218 Tooling Technician 工具工模技術員	72	0.0%	0.0%	80.0%	13.3%	6.7%	0.0%	0.0%	100.0%
	219 CAD or CAM Technician (Tooling/ 3D Printing) 電腦輔助設計或電腦輔助生產技術員（工模／立體打印）	95	0.0%	6.5%	70.7%	20.7%	1.1%	0.0%	1.1%	100.0%
	220 Production Planner 生產策劃員	578	0.2%	14.4%	61.5%	23.7%	0.2%	0.0%	0.0%	100.0%
Sub-total 小計	19330	0.01%	7.2%	44.2%	43.2%	4.3%	0.7%	0.4%	100.0%	

Job Category 技能類別	Principal Job 主要職務	Total No. of Employees 僱員人數	Average Monthly Income Range 每月平均薪酬							Total 總計	
			\$10,000 or below	\$10,001 - \$15,000	\$15,001 - \$20,000	\$20,001 - \$25,000	\$25,001 - \$30,000	\$30,001 - \$40,000	Over \$40,000		
Craftsman Level 技工級	301 Machinist 機床工	343	0.0%	17.1%	72.6%	10.4%	0.0%	0.0%	0.0%	100.0%	
	302 Precision Machinist 精密加工機床工	36	0.0%	0.0%	86.1%	13.9%	0.0%	0.0%	0.0%	100.0%	
	303 Machine Setter 機器調校工	36	0.0%	0.0%	73.3%	26.7%	0.0%	0.0%	0.0%	100.0%	
	304 Mould/ Die and Tool Maker 製模及工具技工	217	0.0%	22.4%	67.2%	10.4%	0.0%	0.0%	0.0%	100.0%	
	305 Fixture Fabricator 夾具製造工	817	0.0%	23.8%	57.7%	18.5%	0.0%	0.0%	0.0%	100.0%	
	306 Electrician 電器技工	639	0.0%	8.4%	82.3%	9.3%	0.0%	0.0%	0.0%	100.0%	
	307 Mechanical Fitter 機械打磨裝配工	2364	0.0%	12.7%	52.2%	35.1%	0.0%	0.0%	0.0%	100.0%	
	308 Moulder and Core Maker (Sand) 砂模及模心製造工	2	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%	
	309 Furnaceman 熔爐工	21	0.0%	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%	100.0%	
	310 Electric Arc and Gas Welder 電焊氣焊工	421	0.0%	0.5%	73.0%	26.5%	0.0%	0.0%	0.0%	100.0%	
	311 Sheetmetal Fabricator 薄片金屬構造工	159	0.0%	3.1%	54.1%	42.8%	0.0%	0.0%	0.0%	100.0%	
	312 Steel Fabricator (Thick Plate) 鋼板構造工	61	0.0%	8.2%	45.9%	45.9%	0.0%	0.0%	0.0%	100.0%	
	313 Plumber and Pipe Fitter 喉管工	123	0.0%	0.0%	91.1%	8.9%	0.0%	0.0%	0.0%	100.0%	
	314 Pattern/Model/Prototyp e Maker 樣本/模型/生產原型 製造工	135	0.0%	2.5%	36.1%	61.3%	0.0%	0.0%	0.0%	100.0%	
	315 Electroplating and Metal Coating Worker 電鍍及金屬塗層工	75	0.0%	10.7%	89.3%	0.0%	0.0%	0.0%	0.0%	100.0%	
	316 Painter 髹漆工	53	0.0%	0.0%	37.7%	62.3%	0.0%	0.0%	0.0%	100.0%	
	317 Metal Printing Craftsman 金屬印製技工	23	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	
	318 Rolling Mill/Extrusion Press Craftsman 軋壓/擠壓技工	33	0.0%	24.2%	75.8%	0.0%	0.0%	0.0%	0.0%	100.0%	
	319 Heat Treatment Craftsman 熱處理技工	6	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%	
	320 Eding/Shaping Craftsman 車邊工	89	0.0%	3.4%	94.4%	2.2%	0.0%	0.0%	0.0%	100.0%	
	323 Plastics Machine Setter 調機技工	34	0.0%	2.9%	82.4%	14.7%	0.0%	0.0%	0.0%	100.0%	
	324 Sizing (Plastics/ Fabric) 裁床技工(塑膠/布 料)	16	0.0%	81.3%	18.8%	0.0%	0.0%	0.0%	0.0%	100.0%	
	325 Quality Control Inspector 品質檢查工	301	0.0%	30.8%	58.5%	10.8%	0.0%	0.0%	0.0%	100.0%	
		Sub-total 小計	6004	0.0%	13.1%	61.4%	25.5%	0.0%	0.0%	0.0%	100.0%

Job Category 技能類別	Principal Job 主要職務	Total No. of Employees 僱員人數	Average Monthly Income Range 每月平均薪酬							
			\$10,000 or below	\$10,001 - \$15,000	\$15,001 - \$20,000	\$20,001 - \$25,000	\$25,001 - \$30,000	\$30,001 - \$40,000	Over \$40,000	Total 總計
Operative Level 操作工級	401 Semi-skilled Machine Operator 機器操作工	651	0.0%	42.8%	57.2%	0.0%	0.0%	0.0%	0.0%	100.0%
	402 Fetter 鑄件整理工	4	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	403 Pourer 澆鑄工	10	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	404 Die-casting Machine Operator 金屬壓鑄機操作工	14	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	405 Electric-resistance Welder 電阻焊接工	95	0.0%	14.7%	76.8%	8.4%	0.0%	0.0%	0.0%	100.0%
	406 Polishing Worker 磨光工	24	0.0%	66.7%	33.3%	0.0%	0.0%	0.0%	0.0%	100.0%
	407 Striker 打鐵工	13	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	408 Press Operator 啤機操作工	268	0.0%	3.4%	96.6%	0.0%	0.0%	0.0%	0.0%	100.0%
	409 Paint Spraying Gun Operator/ Zinc Sprayer 噴漆/噴鋅工	31	0.0%	16.1%	83.9%	0.0%	0.0%	0.0%	0.0%	100.0%
	410 Semi-skilled Electroplating and Metal Coating Worker 電鍍及金屬塗層半技工	10	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	411 Quality Control Operator 品質控制操作工	363	2.9%	20.8%	69.3%	7.0%	0.0%	0.0%	0.0%	100.0%
	412 Assembler 裝配工	800	5.9%	29.5%	64.6%	0.0%	0.0%	0.0%	0.0%	100.0%
	413 Injection Moulding Machine Operator 注塑機操作工	140	2.0%	42.2%	52.0%	0.0%	3.9%	0.0%	0.0%	100.0%
	414 Crane Operator 起重機操作工	49	0.0%	20.7%	79.3%	0.0%	0.0%	0.0%	0.0%	100.0%
	415 Polishing Worker (Lens) 磨鏡片工	37	0.0%	47.1%	52.9%	0.0%	0.0%	0.0%	0.0%	100.0%
	416 Blow Moulding Machine Operator 吹塑機工	20	0.0%	75.0%	25.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	417 Film Blowing Machine Operator 吹膜機工	60	5.3%	36.8%	57.9%	0.0%	0.0%	0.0%	0.0%	100.0%
	418 Vacuum Forming Machine Operator 真空吸塑機工	7	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	419 Other Plastics Processing Machine Operator 其他塑膠加工機操作工	292	2.6%	52.8%	44.6%	0.0%	0.0%	0.0%	0.0%	100.0%
	420 Power Press Operator 動力沖壓機操作工	0	-	-	-	-	-	-	-	-
	421 Printing Operator 印刷工	68	6.1%	75.5%	18.4%	0.0%	0.0%	0.0%	0.0%	100.0%
	422 Seamstress/ Sewing Machine Operator 縫工	8	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Sub-total 小計	2964	2.6%	34.1%	61.9%	1.2%	0.2%	0.0%	0.0%	100.0%	
Unskilled Level 非技術工人級	501 General Worker 雜工	1280	12.6%	81.8%	5.5%	0.0%	0.0%	0.0%	0.0%	100.0%
	Sub-total 小計	1280	12.6%	81.8%	5.5%	0.0%	0.0%	0.0%	0.0%	100.0%
Total 總計		38913	0.6%	11.1%	37.7%	30.7%	11.4%	6.8%	1.7%	100.0%

QUALITY CONTROL MEASURES

(a) Prior fieldwork preparation

Before the commencement of fieldwork, efforts were made to collect contact telephone numbers of the sampled establishments as far as possible. In addition, sampled establishments belonged to the same business organisations were grouped together to facilitate the fieldwork execution.

(b) Thorough training of fieldwork staff

VTC organised an industry briefing workshop to familiarise the fieldwork staff with industry related knowledge.

An intensive briefing and training session were given to all fieldwork staff involved to ensure that they had a good understanding of the survey objectives, the contents of the questionnaire and the operational procedures. Representatives of VTC had participated as guest speakers in the briefing session to answer and clarify queries.

(c) Monitoring of the fieldwork execution

Well-trained enumerators who are experienced in conducting establishment surveys were deployed to conduct the fieldwork. The fieldwork progress and the work of enumerators were closely monitored by fieldwork supervisors. Debriefing sessions were held twice a week to discuss and solve the problems encountered and to review the quality of the questionnaires completed.

Joint field visits to a number of establishments were made by staff of VTC to ensure that fieldwork was properly conducted.

(d) Measures to increase the response rate

A number of measures were employed to increase the response rate. In particular, assistance from the Training Board and trade associations was rendered in persuading and soliciting cooperation from their members to participate in the survey.

(e) Checking of the completed questionnaires

Completed questionnaires returned by each enumerator were subject to sample check

by an independent team of experienced checkers to verify if field visits had really been made.

ALL the completed questionnaires had undergone vetting process by staff of VTC. Dubious cases identified were followed up by telephone and field verification with the parties concerned.

(f) Double data entry and validation of the collected data

A double data entry system was adopted to minimise the risk of incorrect data entry. Besides, all input data were subject to computer validation and dubious cases identified were followed up by field verification.

質素保證措施

(a) 調查前之準備工作

調查工作開始前，盡量取得樣本機構的聯絡電話，並將同一業務集團的樣本機構歸為一組，方便進行調查。

(b) 培訓實地調查人員

VTC 為實地調查人員舉辦工作坊，簡介行業情況，讓他們熟習行業相關知識。

所有實地調查人員須參加一場密集的簡介和培訓，確保明白人力調查的目的、問卷內容和運作程序。VTC 的代表亦擔任講員，解答問題。

(c) 監察調查工作

實地調查工作由已完成訓練的調查員負責，他們具備為機構進行調查的經驗，並由調查督導主任監察調查的進度以及工作情況。每周舉行兩次檢討會議，討論和解決所遇難題，並審閱收回的問卷是否填妥和有效。

VTC 的職員亦一同訪查多間機構，確保調查工作進行得當。

(d) 提升回應比率

調查期間採用不同措施以提升人力調查的回應比率，包括邀請訓練委員會和行業商會協助，呼籲會員機構合作參與，填覆問卷。

(e) 核對填覆的問卷

每名調查員所交回的問卷，都會由一組獨立及有經驗的核對員抽樣查核，查證調查員已如實探訪。

所有填覆問卷都經由 VTC 的職員審閱，有疑問時會以電話聯絡有關人士跟進，並核實。

(f) 雙重數據輸入並核實數據

調查採用一套雙重數據輸入系統，以減少錯誤輸入情況。此外，所有輸入資料須經電腦核證，跟進疑問個案，並核實。

DEFINITION OF TERMS

Average income	“Average income” refers to the monthly income including basic wages, regular overtime pay, cost of living allowance, meal allowance, commission and bonus. It is an average figure among employees engaging in the same principal job.
Craftsman level	“Craftsman level” refers to a skilled worker who is able to apply his/her skills to a wide range of jobs within his/her trade, with minimum direction and supervision. A craftsman possesses not only practical skills but also related theoretical knowledge which enables him/her to adapt himself/herself to new technologies.
Diploma/certificate	“Diploma/certificate” refers to technical and vocational education programmes including Diploma/Certificate courses, Diploma of Foundation Studies, Diploma of Vocational Education and programmes at the craft level or equivalent.
Employees	“Employees” refer to those who are under the payroll of the sampled establishment/company for the specified job, disregarding whether the employees are deployed to work in other places (including the mainland of China).
First degree	“First degree” refers to first degrees offered by local or non-local education institutions, or equivalent.
Internal promotion	An “internal promotion” is the promotion of an employee to a higher job level by virtue of his/her performance or abilities.
Operative level	“Operative level” refers to a worker who performs tasks in the assembly of products in accordance with predetermined job instructions or operates machine(s) which have been set up by other persons.
Postgraduate degree	“Postgraduate degree” refers to higher degrees (e.g. master degrees) offered by local or non-local education institutions, or equivalent.

Secondary 4 to 7	“Secondary 4 to 7” refers to Secondary 4 to 7, covering the education programmes in relation to the Hong Kong Certificate of Education Examination (HKCEE), the Hong Kong Diploma of Secondary Education (HKDSE) Examination, Diploma Yi Jin, or equivalent.
Sub-degree	“Sub-degree” refers to Associate Degrees, Higher Diplomas, Professional Diplomas, Higher Certificates, Endorsement Certificates, Associateship or equivalent programmes offered by local or non-local institutions.
Technician/supervisory level	“Technician/supervisory level” refers to a person who occupies a position between the technologist/manager and the craftsman. His/Her education, training and practical experience enable him/her to apply proven techniques and procedures to carry out technical tasks, normally under the guidance of a technologist/manager.
Technologist/managerial level	“Technologist/managerial level” refers to a person who has the qualification and experience equivalent to that required for corporate membership of a professional institution. He/She should 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, to exercise original thought and judgment, to keep abreast of technology, to apply the latest techniques and to supervise/develop his/her subordinates.
Total number of persons engaged (PE)	“Total number of persons engaged (PE)” refers to the number of employees who are under the payroll of the sampled establishment/company regardless of whether they are working outside Hong Kong.
Trainees	“Trainees” include all trainees receiving any form of training and apprentices under a contract of apprenticeship.

Unskilled level

“Unskilled level” refers to a person who is normally assigned to perform repetitive work requiring only a narrow range of skills and short period of training.

Vacancies

“Vacancies” refer to those unfilled, immediately available job openings for which the establishment is actively trying to recruit personnel at the time of survey.

釋義

平均收入	「平均收入」指每月的收入，包括：基本薪金、一般超時工作補薪、生活津貼、膳食津貼、佣金及花紅，將同一主要職務所有僱員的收入平均計算而得出。
技工級人員	「技工級人員」是指技術熟練的工人，能在有限度的指示及督導下，應用技術執行專屬行業內的各種職務。除具備實際技能，亦需有相關的理論知識，以便能適應日新月異的科技發展。
文憑／證書	「文憑／證書」泛指技術及職業教育課程的學銜，包括：文憑／證書、基礎課程文憑、職專文憑以及技工級或同等程度的學銜。
僱員	「僱員」指在樣本機構／公司某項職務編制內的人員，無論這些人員是否派駐其他地方工作（包括中國內地）。
學士學位	「學士學位」是指由本地或非本地教育院校所頒授的學士學位或同等資歷。
內部晉升	「內部晉升」是指僱員因工作表現或能力良好而獲擢升至更高職級。
操作工級人員	「操作工級人員」指能按照既定的工作指示裝配配件為製成品，或操作已由他人校妥的一種或多種機床之工人。
研究生學位	「研究生學位」是指由本地或非本地教育院校所頒授學士以上的學位或同等資歷（如：碩士學位）。
中四至中七	「中四至中七」是指由中四至中七的高中學歷水平，等同香港中學會考、香港中學文憑、毅進文憑或同等的學歷。
副學位	「副學位」是指由本地或非本地院校課程所頒授的副學士、高級文憑、專業文憑、高級證書、增修證書、院士或同等資歷。

技術員／督導級人員	「技術員／督導級人員」的職級介乎技師／經理和技工之間，具備相當學歷、工作經驗及曾受實務訓練，能夠在技師／經理的督導下，運用已確立的技術和程序，執行技術工作。
技師／經理級人員	「技師／經理級人員」須具備相當於有關專業學會企業會員所需的資歷及經驗，能夠分析和解決各種技術問題。此外，亦須主動負責發展和應用工程原理，具創見和判斷力，與專屬範疇的科技發展並進，應用現代管理技巧，以及督導和培訓下屬。
僱員總數	「僱員總數」是指樣本機構／公司編制內的全部僱員，無論是否在本港或以外地方工作。
受訓者	「受訓者」包括所有接受任何形式培訓的學員以及簽有學徒訓練合約的學徒。
非技術工人	「非技術工人」通常獲指派擔任性質重複的工作，要求的技能較少，訓練時間亦較短。
職位空缺	「職位空缺」是指在人力調查期間懸空、須立刻填補而有關機構亦正積極招募人手的職位。