



Manpower Update Report

Electrical and Mechanical Services Industry

2020

Electrical and Mechanical Services
Training Board

ACKNOWLEDGEMENT

The Electrical and Mechanical Services Training Board (EMTB) would like to express its gratitude to the members of the focus group for their valuable time and insights on the manpower situation in the Electrical and Mechanical Services industry. Special thanks go to CPJobs and CTgoodjobs who shared with us their database of job vacancies. The views of focus group members and information from major recruitment websites formed an integral part of this report.

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Introduction

Background

The Electrical and Mechanical Services Training Board (EMTB) of the Vocational Training Council (VTC) is appointed by the Government of the HKSAR. According to its Terms of Reference, the EMTB is responsible for determining manpower demand of the industry, assessing whether the manpower supply matches manpower demand, and recommending to the VTC the development of vocational and professional education and training (VPET) facilities to meet the assessed training needs.

A new approach for collecting manpower information is adopted to enhance the effectiveness and better reflect the dynamics of manpower situation in various industries.

Under the new approach, one full manpower survey which collects companies' manpower data by means of questionnaires, is conducted every four years. This is supplemented with two manpower updates which rely on desk research and focus group meeting(s).

The EMTB completed its latest full manpower survey in the second half of 2017. According to the schedule, two manpower update reports would be published in the first quarter of 2020 and 2021 respectively.

The contents of the manpower update reports are based on two information sources:

- (i) focus group meeting(s) collecting the views of industry experts on the latest development of the industry, its manpower and training needs, recruitment and retention difficulties, and suggested solutions for the challenges; and
- (ii) desk research analysing recruitment advertisements, including the offered salaries, qualification and experience requirements of different principal jobs of the industry.

Objectives

The objectives of manpower update are:

- (i) to examine the latest trends and development of the industry;
- (ii) to explore the job market situation and training needs;
- (iii) to identify the recruitment and retention challenges; and
- (iv) to recommend measures to meet the training needs and to ease the problem of manpower shortage.

Methodology

Overview

With reference to the 2017 full manpower survey of the Electrical and Mechanical (E&M) Services industry, this update report aims to provide qualitative descriptions of the recent development of the industry through focus group meeting, supplemented by quantitative findings from desk research.

Focus Group Meeting

A focus group meeting was held on 4 October 2019. Ten representatives from different sectors of the E&M Services industry, including trade associations, employers, consultant firm, learning society and workers' union, participated in the meeting.

An experienced moderator led members to in-depth discussions on topics selected by the Working Party on Manpower Survey of the EMTB. The discussions were recorded and transcribed to facilitate analysis.

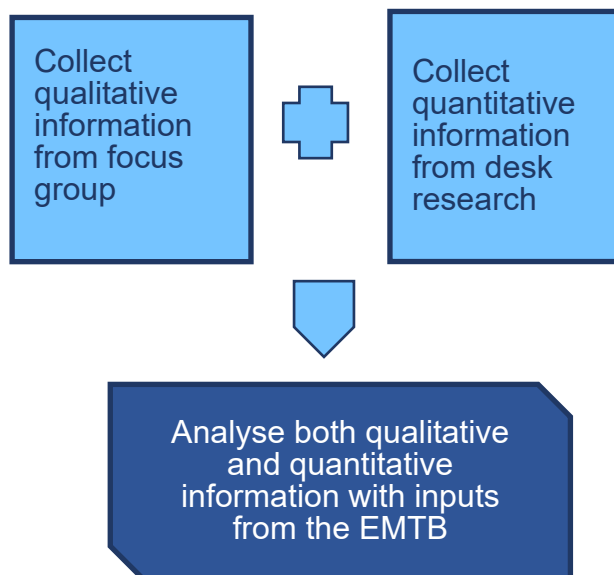
Desk Research

An employment information system was developed to capture recruitment advertisements from CPJobs, CTGoodJobs and other major online recruitment portals. Over one million records were collected between Quarter 3 of 2018 and Quarter 2 of 2019 for all industries. After de-duplication and a

mapping process based on the company list under the Hong Kong Standard Industrial Classification, 2,552 records relevant to the E&M Services industry were identified. These 2,552 records were further grouped by skill levels, i.e., professional/technologist, technician, tradesman/craftsmen and semi-skilled/general worker, to facilitate further analysis.

Data Analysis

The analysis consists of the following three steps:



Limitations

As this is not a full manpower survey, the findings and recommendations of the focus group meeting are more qualitative in nature and hence the manpower update report focuses mainly on the manpower trends.

The information of job advertisements was collected from major recruitment websites and the Labour Department. Other channels, such as social media and referral by friends, were not covered by desk research. As the result, a clear correlation between the number of

recruitment advertisements found and the number of employees recorded in the full manpower survey could not be identified. Moreover, the offered salaries in the recruitment advertisements were noticeable lower than the level recorded in the full manpower survey, because of title inflation in the job market.

In addition, the data collected is a snapshot of particular period without reference to any historical data. Hence, the findings of desk research should be treated as reference only. They should not be directly compared with the figures recorded in the full manpower survey.

Findings

Factors Affecting the Development of the Industry

Technology

Application of new technologies has become more prevalent across different sectors of the E&M Services industry. This includes more digitised controls found in Building Services Engineering and increasing emphasis on the use of Building Information Modeling (BIM) throughout the construction cycle.

As new approaches to construction projects such as BIM and DfMA (Design for Manufacturing and Assembly) / MiC (Modular Integrated Construction) are gaining popularity, industry practitioners will spend more time in the office for design and simulation, and less time in the harsh and unpleasant construction sites. The young generation will surely welcome the move.

While computer knowledge including programming techniques has been becoming more important, it was noted that practitioners' repairing skills might have been weakened in recent years. Nowadays, the common practice for maintenance and repairing is to replace the faulty components or modules, instead of fixing them.

The Lift and Escalator sector witnessed rapid technological advancement in Mainland China during the past decade. Further knowledge exchange and collaborations between Hong Kong and Mainland partners are considered necessary.

Infrastructure

While a number of major infrastructure projects, e.g. new railway lines, have been completed during the past few years, there are still plenty of ongoing and new projects

ahead, e.g. the 10-year Hospital Development and Improvement projects. In general, focus group members expressed optimism about the industry growth in coming years.

Manpower Demand

Focus Group

In view of the retirement wave and the challenges encountered in skill/knowledge transfer to the young generation, the current manpower shortage problem is expected to worsen in the coming few years. Workforce at all levels, from professional/technologist to tradesman/craftsman are strongly demanded.

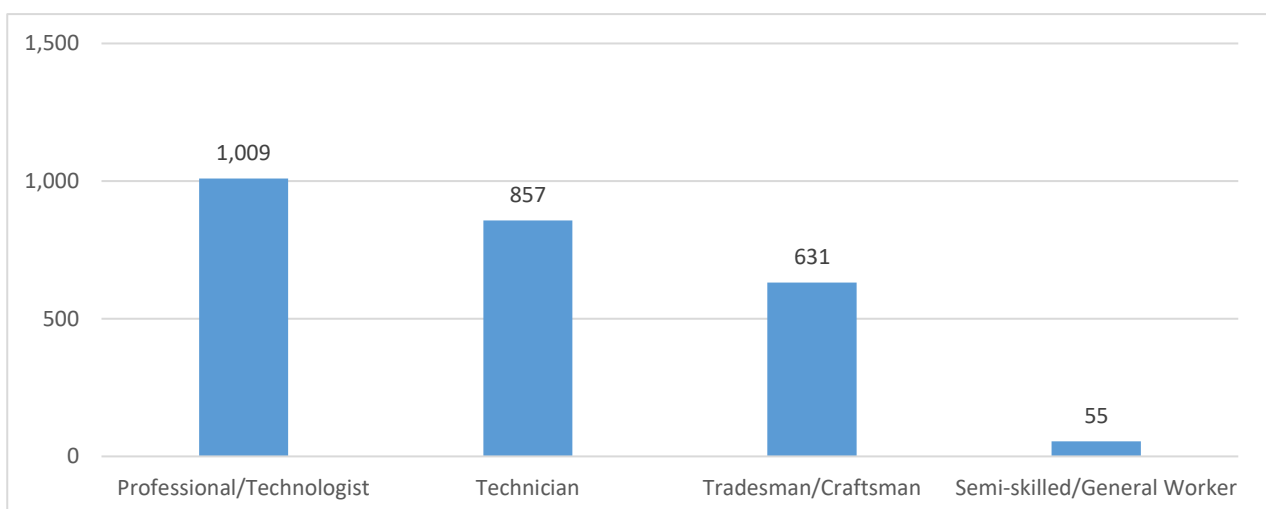
Within the period of Q3/2018 to Q2/2019, a total of 2,552 recruitment advertisements related to the E&M Services industry were captured by desk research. Their distribution by skill levels is shown in Figure 1.

Among these 2,552 advertisements, 94.6% belonged to the E&M Engineering sector. The Aircraft Maintenance sector and the Gas sector accounted for the remaining 4.5% and 0.9% respectively. The detailed breakdown is in Appendix 1.

Appendix 2 shows the required qualifications for each skill level, as specified in the 2,552 recruitment advertisements.

Desk Research

Figure 1 Distribution of Recruitment Advertisements by Skill Levels



Comparison with the 2017 Full Manpower Survey

The number of recruitment advertisements found in each sector was roughly proportional to the manpower recorded in the 2017 full manpower survey, with the exception of the Gas sector (which accounted for 3.3% of the manpower in the E&M Services industry).

On the other hand, the distribution of recruitment advertisements by skill levels

was quite different to the proportions of employees recorded in the 2017 full manpower survey (i.e., 15% : 24% : 56% : 5%). This could be attributed to title inflation and the limitation of desk research, i.e. some recruitment channels were inaccessible.

With the availability of historical data in the next round of manpower update, it is hoped that more meaningful findings can be derived from desk research by means of trend analysis.

Training Needs

Real Work Experience

Focus group members reiterated the importance of helping students develop a realistic understanding of the workplace environment before sending them to work. Students are expected to have a proper working attitude and realistic expectation about the work experience.

Practical Skills

Focus group members expressed frustration and disappointment with a decreasing level of practical skills as witnessed among fresh graduates in recent years. Training programmes' theoretical and practical components should be properly balanced to address the demand of the industry.

Building Energy Code

The Building Energy Code has been enforced for seven years but many E&M engineering practitioners are still lacking the knowledge. It is unfair to put all the burdens on the Registered Energy Assessors when others do not know how to cooperate.

Soft Skills

In addition to technical knowledge, employers also consider that soft skills such as inter-personal communication, project management and presentation skills as equally important. Currently, some companies offer internal training for staff with high potential for supervisory or managerial positions.

Recruitment and Retention Challenges

Due to keen competitions in the job market, some employers experienced challenges in recruiting and retaining their technical staff. The difficulties encountered and possible factors are summarised below:

Image of the Industry

Although VTC has been closely collaborating with the industry to offer a great variety of programmes for the E&M Services industry, the enrollment remained rather limited.

Lack of interest in joining the industry may be related to the overall image of the industry perceived by the young generation. Current gaps/ misunderstanding about the industry include the following:

- (i) Do prospective students know about the diversified career paths offered by the industry?
- (ii) Are they aware of the hi-tech and innovative elements pledged in the future development of the industry?

Expectation and Motivation about the Job

Without proper mental preparation and understanding about the industry, some young joiners found the actual work environment, in particular those in construction sites and old buildings, less ideal than they expected. They left the jobs very soon.

Focus group members also pointed out that some young people treated their career quite casually and expect to have fun at work. Without the right attitude, e.g. willingness of doing repetitive and effort-demanding tasks, the effectiveness of apprenticeship training was jeopardised.

Keen Competition among Employers

Certain sectors in the E&M Services industry encountered more challenges in recruiting and retaining staff. Apart from remuneration package, the remote working location, e.g. airport, was also a barrier for attracting new workers and keeping them.

Recommendations

To meet the future development of the industry, it is essential that employers and education institutions can work hand in hand, to promote the career prospects of the industry to the young generation. Suitable training opportunities and coaching should also be provided to help students and trainees meet the industry needs and adapt to the real working environment smoothly. To achieve the above objectives, the following measures are recommended:

Education Institutions

Conduct Interviews with Successful Graduates

In addition to those who achieved high academic attainments, graduates who had successful development in the industry, e.g. setting up their own business, should also be invited for the production of promotional videos. Their choices of studies, challenges and difficulties overcome at work, can help to paint a more realistic but engaging picture to prospective students.

Enhance Secondary School Teachers' Knowledge about the Industry

Secondary school teachers and career masters play a key role in advising students on their career pathways. They are one of the key influencers on their students' choices. Enhancing teachers' exposure, knowledge and experience about the E&M Services Industry, through career expos, talks and visits, is crucial to attracting new bloods to the industry.

Provide Career Counseling and Mentorship at the Early Stage of Study

Graduates can be invited to serve as mentors, helping students and their parents understand the industry and make the right career choice before they go out for work.

Strengthen Practical Training

The training of practical skills should be strengthened to assure students' readiness to work. The proportions of theoretical and practical components in training programmes should be reviewed regularly, to align with the industry needs and expectations.

Offer more Electives in Higher Diploma Programmes

Subject to operational constraints (e.g. student numbers), IVE should consider offering more electives (e.g. gas, railway engineering) in its Higher Diploma programmes to better prepare students for employment.

Provide more Overseas Learning Opportunities to Students and Apprentices

Overseas learning opportunities, including skill competitions, can broaden the exposures of students and apprentices and enable them to better understand the career prospects of the industry.

Integrate Whole Person Development in Apprenticeship Training

In addition to full-time students, apprentices should also receive training on whole person development, to foster the right attitude and ethics towards work, and improve their inter-personal communication skills.

Employers

Review the Practice of Apprenticeship Training

The practice of apprenticeship training should be reviewed and properly adjusted, thus better match the learning mode of the young generation. Trainees should be encouraged to experiment their knowledge in daily work, sharpen their skills and cultivate a sense of ownership.

Value the Importance of Mentorship

Supervisors should establish a mentorship relationship with the apprentices, nourishing trust, impact and modeling effect. In addition to knowledge transfer, mentors can help

apprentices understand the career path and their contributions to the city's development.

The Apprenticeship Training Board can consider extending its Outstanding Apprentices Award Scheme to recognise the contributions of mentors in apprenticeship training.

Provide a Better Work Environment

To attract and retain young talents, employers should improve the work environment in construction sites, tunnels etc., with automation technologies, additional hardware support (including basic facilities like fans and water dispensers as well as advanced equipment like wearable robotics) and shift arrangements.

Monitor the Training and Employment Development

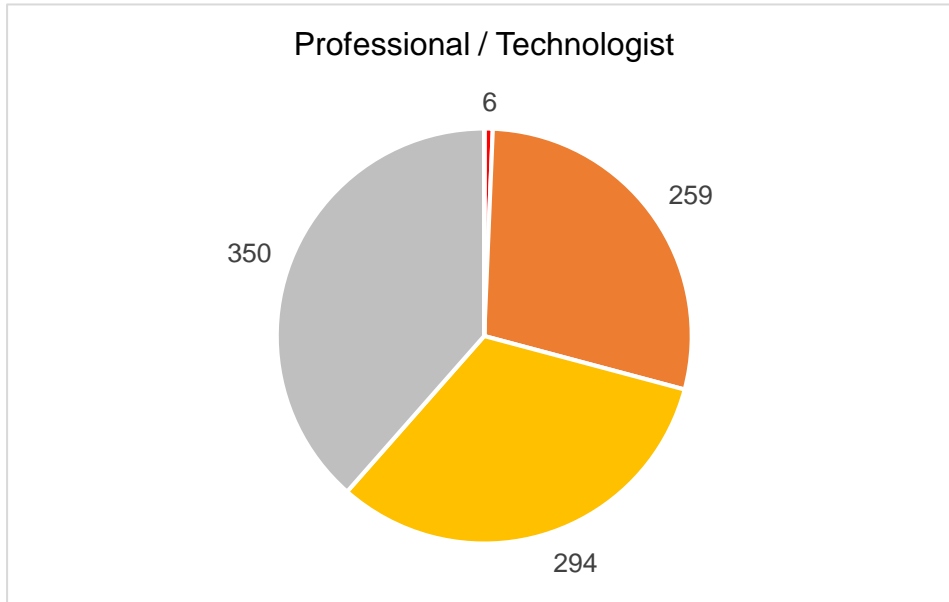
Key manpower statistics of the industry, e.g. number of employees, trainees and vacancies, are readily available from the manpower survey report published by the EMTB. In addition, the VTC also conducts employment and employers' satisfaction surveys for its graduates.

Additional information related to the training and employment development of the industry, e.g., retention rates of new joiners, effectiveness of mentorship schemes and training programmes, can be collected by means of additional questions in EMTB's manpower survey questionnaire. To facilitate manpower and programme planning for the industry, employers should tender full support to the survey.

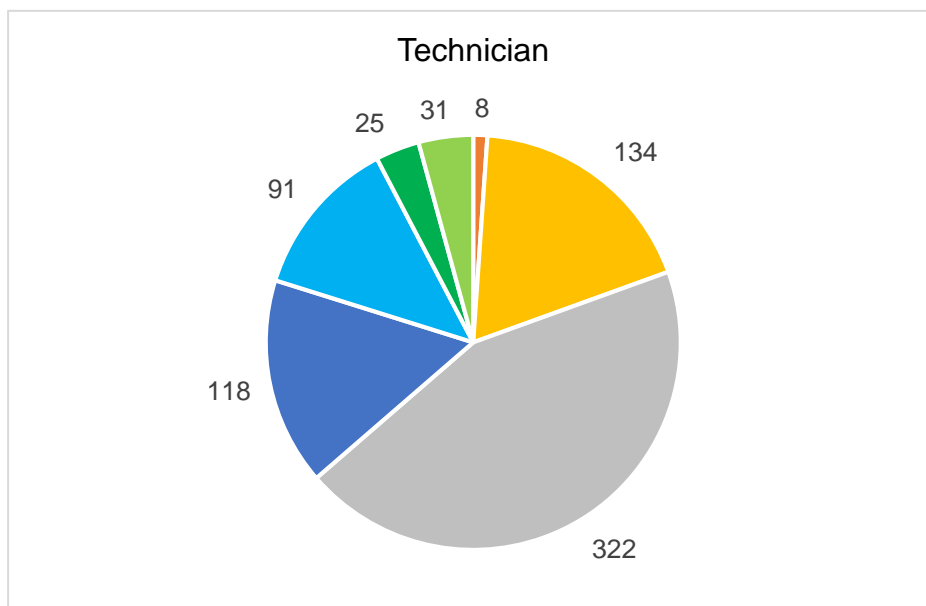
Number of Job Vacancy Advertisements from Popular Recruitment Media
(Q3 2018 to Q2 2019) by Job Levels, Sectors and Branches

Sector	Branch	Professional / Technologist	Technician	Tradesman / Craftsman	Semi- skilled / General Worker	Total
Electrical and Mechanical Engineering	Contracting (E&M)	440	317	199	28	984
	Electrical Fitting with Water Plumbing	23	36	14	2	75
	Servicing (E&M)	430	359	319	9	1,117
	Supplementary Samples	78	110	46	5	239
Gas	Gas manufacturing and distribution companies	0	1	0	0	1
	Gas Fitting, Installation and Maintenance	0	2	3	1	6
	Supplementary Samples	0	9	6	0	15
Aircraft Maintenance	Aircraft assembly and manufacture of related machinery	38	23	44	10	115
Total		1,009	857	631	55	2,552

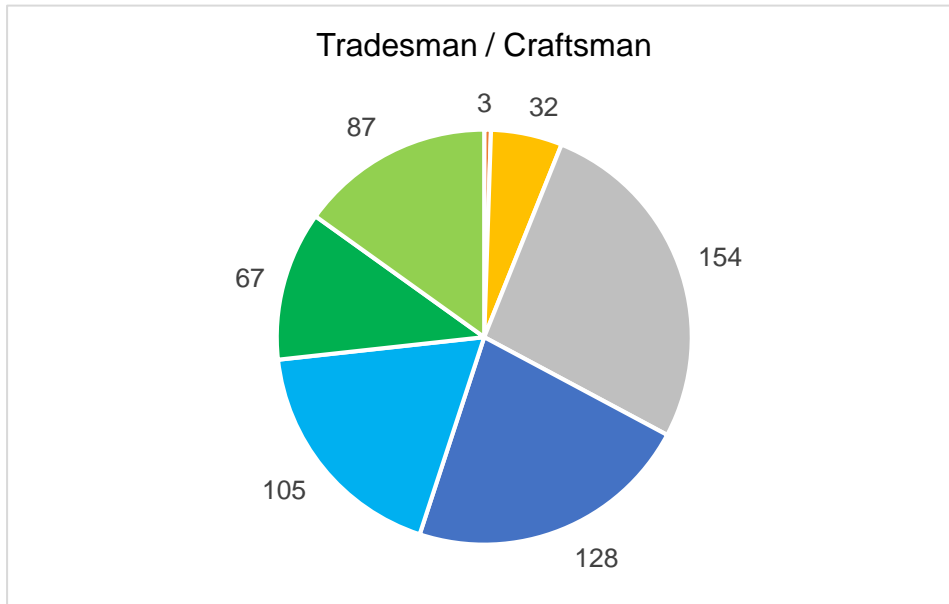
Distribution of Job Vacancy Advertisements by Qualification Requirements
(Q3 2018 to Q2 2019)



- Post Graduate
- University Degree
- Sub-Degree / Higher Diploma / Higher Certificate
- Diploma / Certificate / Apprenticeship
- Upper Secondary (F.4 or above)
- Lower Secondary (F.1 to F.3)
- Primary
- No Requirement



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