

LCQ19: Supply of innovation and technology talents

Following is a question by the Hon Chau Siu-chung and a written reply by the Secretary for Innovation and Technology, Mr Alfred Sit, in the Legislative Council today (February 16):

Question:

Regarding the supply of innovation and technology (I&T) talents needed for Hong Kong's development into an international I&T hub and for promoting re-industrialisation, will the Government inform this Council:

(1) whether it knows (a) the total number of places for I&T-related programmes offered by local degree-awarding higher education institutions, as well as (b) the respective numbers of (i) local and (ii) non-local students who graduated from such programmes (with a tabulated breakdown by type of degree), in each of the past five years;

(2) whether it knows, among the (a) local and (b) non-local graduates in each of the past five years mentioned in (1), the respective numbers of those who (i) engaged in the first year after graduation and (ii) are currently still engaging in I&T-related industries in Hong Kong (with a tabulated breakdown by type of degree);

(3) of the respective numbers of non-local talents with I&T-related academic qualifications and working experience who (i) applied for admission and (ii) were admitted to Hong Kong under the various admission schemes of the Government, in each of the past five years; whether it knows, among such talents who were admitted to Hong Kong, the number of those who have been engaging in I&T-related industries since their arrival in Hong Kong (with a tabulated breakdown by the admission scheme concerned);

(4) whether it knows the number of I&T talents who emigrated from Hong Kong in each of the past five years, and the reasons for their leaving Hong Kong; and

(5) whether it has evaluated the effectiveness of the existing policies and measures for attracting local and non-local I&T talents to stay in Hong Kong for career development; whether it will take additional measures to step up the training and retainment of such talents; if so, of the details; if not, the reasons for that?

Reply:

President,

The current-term Government has unprecedentedly invested over

\$130 billion in developing innovation and technology (I&T) along the eight major areas set forth by the Chief Executive in 2017. Various initiatives are gradually bearing fruits. In terms of talent, Hong Kong ranked first worldwide in "readiness" in the World Talent Ranking 2021. The Government strongly agrees that talent is an essential propeller for I&T development. Having coordinated the information provided by the Education Bureau (EDB) and the Security Bureau, I provide the consolidated reply as follows:

(1) Regarding the University Grants Committee (UGC)-funded universities, under the principle of institutional autonomy, the Government would in general indicate only the approved student number targets at each study level for individual universities. The universities could flexibly determine the intake places of various programmes, including STEM-related programmes, in accordance with their own objectives and strategies. Over the past five academic years, the actual admissions and numbers of graduates of UGC-funded STEM-related undergraduate programmes are set out in Tables 1 and 2 below respectively.

Table 1: Actual admissions of UGC-funded STEM-related undergraduate programmes from 2016/17 to 2020/21 academic years

Academic year	STEM-related undergraduate programmes	
	Actual number of first year admissions	Actual number of senior year admissions
2016/17	6 567	1 598
2017/18	6 785	1 582
2018/19	6 986	1 596
2019/20	7 036	1 617
2020/21	6 962	1 532

Note: The above STEM-related admission figures include programmes with elements of academic programme categories (APCs) of Biological Sciences, Physical Sciences, Mathematical Sciences, Computer Science and Information Technology, Engineering and Technology, and Architecture and Town Planning. Since some UGC-funded programmes are related to more than one APCs, the students of these programmes are counted across the APCs concerned on pro-rata basis. In the above table, decimal figures are rounded to the nearest whole number, and therefore figures may not add up to the corresponding totals. The figures include local and non-local students.

Table 2: Number of local and non-local graduates of UGC-funded STEM-related undergraduate programmes from 2016/17 to 2020/21 academic years

Academic year	Graduates of STEM-related undergraduate programmes		
	Local	Non-local	Total
2016/17	6 077	876	6 953
2017/18	6 409	908	7 317
2018/19	6 479	999	7 478
2019/20	6 298	1 061	7 359
2020/21 (Provisional figures)	6 588	1 100	7 688

Note: The above STEM-related graduate figures include programmes with elements of APCs of Biological Sciences, Physical Sciences, Mathematical Sciences, Computer Science and Information Technology, Engineering and Technology, and Architecture and Town Planning. Since some UGC-funded programmes are related to more than one APCs, the graduates of these programmes are counted across the APCs concerned on pro-rata basis. In the above table, decimal figures are rounded to the nearest whole number, and therefore figures may not add up to the corresponding totals. The figures include the students admitted to first year and senior year.

As regards self-financing post-secondary education institutions, the actual intakes and numbers of graduates of STEM-related full-time locally-accredited self-financing undergraduate programmes in the past five academic years are set out in Tables 3 and 4 below respectively.

Table 3: Actual intakes of full-time locally-accredited self-financing undergraduate programmes related to STEM from 2016/17 to 2020/21 academic years

Academic year	STEM-related undergraduate programmes	
	Actual intakes of first-year-first-degree programmes	Actual intakes of top-up degree programmes
2016/17	640	1 090
2017/18	649	1 358
2018/19	597	1 523
2019/20	542	1 619
2020/21	461	1 859

Note: The above STEM-related intake figures include programmes with elements of APCs of Biological Sciences, Physical Sciences, Mathematical Sciences, Computer Science and Information Technology, Engineering and Technology, and Architecture and Town Planning. The figures include local and non-local students.

Table 4: Number of graduates of full-time locally-accredited self-financing undergraduate programmes related to STEM from 2016/17 to 2019/20 academic years

Academic year	Graduates of STEM-related undergraduate programmes
2016/17	1 608
2017/18	1 538
2018/19	1 835
2019/20	1 800

Note: The above STEM-related graduate figures include programmes with elements of APCs of Biological Sciences, Physical Sciences, Mathematical Sciences, Computer Science and Information Technology, Engineering and Technology, and Architecture and Town Planning. The figures include local and non-local students of first-year-first-degree and senior-year admissions. As graduate figures for the 2020/21 academic year are being consolidated, only the figures from 2016/17 to 2019/20 academic years can be provided

(2) The EDB and the UGC do not collect statistics on the number of students of UGC-funded programmes and self-financing post-secondary education institutions joining I&T-related industries after graduation.

(3) Statistics on the approved applications from applicants classified under I&T-related industries/sectors of various talent admission schemes/policies in the past five years are set out in Table 5 below. The Immigration Department (ImmD) does not maintain other breakdown statistics requested in the question.

Table 5: Number of approved applications from applicants classified under I&T-related industries/sectors of various talent admission schemes/policies in the past five years

Immigration scheme/ policy (Note 1)	2017	2018	2019	2020	2021

General Employment Policy (GEP) (Note 1)	1 323	1 381	1 655	652	585
Admission Scheme for Mainland Talents and Professionals (ASMP) (Note 1)	298	438	501	426	576
Quality Migrant Admission Scheme (QMAS) (Note 2)	76	137	204	419	563
Immigration Arrangements for Non-local Graduates (IANG) (Note 1 and Note 3)	528	435	619	603	520
Technology Talent Admission Scheme (TechTAS) (Note 4)	N/A	24	75	116	60

Note 1: Applications approved under the GEP, ASMP and IANG refer to applicants from the Information Technology sector.

Note 2: The number of quotas allotted under the QMAS refers to the number of applicants from the Information Technology and Telecommunications sector. The industry/sector under the QMAS refers to the category to which the applicants belong as classified by the ImmD and the Advisory Committee on Admission of Quality Migrants and Professionals during the selection exercise. Successful applicants are not required to have secured an offer of employment before entering Hong Kong.

Note 3: The figures refer to the number of applications approved for extension of stay. Non-local fresh graduates under the IANG are not required to have secured an offer of employment upon application. As such, the ImmD does not maintain the breakdown statistics of industry/sector to which the applicants belong upon their first application.

Note 4: TechTAS was launched in June 2018. The approved figures cover applicants from 13 technology areas, including Artificial Intelligence, Biotechnology, Cybersecurity, Data Analytics, Financial Technologies, Material Science, Robotics, 5G Communications, Digital Entertainment, Green Technology, Integrated Circuit Design, The Internet of Things and Microelectronics. Currently, the validity period of the quotas is 12 months. The Innovation and Technology Commission allotted 210 (in 2018), 100 (in 2019), 207 (in 2020) and 96 (in 2021) quotas respectively. The figures in the table represent the number of applications for employment visa/entry permit for eligible persons from companies with quotas allotted made to the ImmD in the relevant years.

(4) Hong Kong residents travelling abroad are not required to inform the Government of their purpose of travel. As such, the Government does not have direct statistics on the emigration of Hong Kong residents nor other breakdown statistics requested in the question.

(5) The Government has been adopting a multi-pronged approach to enlarging

the I&T talent pool through attracting, nurturing and retaining talent with a series of initiatives. In order to nurture students' interest in I&T from a young age, the Government is committed to promoting STEM education in multiple dimensions. Beyond the regular curriculum, the IT Innovation Lab in Secondary Schools and Knowing More About IT Programmes subsidise secondary and primary schools respectively to organise extra-curricular activities related to information technology. Over 410 secondary and primary schools have submitted funding applications for the two programmes since launch.

In order to attract university students to explore opportunities in I&T, the Innovation and Technology Commission (ITC) launched the STEM Internship Scheme in June 2020 to enable more university students in STEM disciplines to experience I&T-related work during their studies. Over 4 700 university students have benefitted from the scheme so far. The Hong Kong Science and Technology Parks Corporation and Cyberport also provide the youth with internship and training opportunities through various schemes. The Innovation and Technology Scholarship subsidises outstanding university students to take part in overseas exchange, local internships, mentorship programmes, etc., annually, with a view to nurturing future leaders in the I&T sector. The Government also launches different schemes to assist the youth in pursuing a career in I&T after graduation. For instance, the Research Talent Hub under the ITC funds enterprises and research institutions to recruit holders of bachelor's, master's and doctoral degrees to conduct research and development (R&D) work for a maximum of three years, and it has funded 6 260 research talents over the past five years. In addition, the Reindustrialisation and Technology Training Programme subsidises local enterprises on a matching basis for their staff to receive training in advanced technologies, having supported over 8 000 trainees to participate in over 10 000 training sessions as at end-2021.

In order to facilitate talent admission to Hong Kong, the Technology Talent Admission Scheme handles applications that involve the admission of non-local talent to undertake R&D work in Hong Kong expeditiously, covering 13 technology areas. The Global STEM Professorship Scheme supports universities in attracting world-renowned I&T scholars and their teams to undertake teaching and research work in Hong Kong.

The Government drew up the first Talent List of Hong Kong in 2018, with a view to attracting high quality talent in an effective and focused manner to support Hong Kong's development into a high value-added and diversified economy. Upon the review in 2021, the list sets out more explicitly the scope of some professions to include experts of Medical and Healthcare Sciences, Microelectronics, Integrated Circuit Design, Arts Technology, etc. The Government will also double the annual quota of the Quality Migrant Admission Scheme to 4 000 to attract talent from all over the world to work in Hong Kong, as well as explore the extension of the Immigration Arrangement for Non-local Graduates to cover graduates of Hong Kong universities' Guangdong-Hong Kong-Macao Greater Bay Area campuses.

In addition, the Government of the Hong Kong Special Administrative Region and the Shenzhen Municipal Government are jointly developing the

Shenzhen-Hong Kong Innovation and Technology Co-operation Zone (Co-operation Zone) at full steam. To attract talent and enterprises to develop in the Co-operation Zone, the two governments launched a joint policy package in September last year to implement measures conducive to the flow of talent, scientific research resources and business development, etc.

The Government will continue to foster the positive interaction with the industry, academia and research sectors, thereby jointly developing Hong Kong into an international I&T hub.