

HIGHER EDUCATION AND SKILLS TRAINING

Source of Data

Statistics on graduates from the institutions of higher learning in Singapore are provided by the National University of Singapore, Nanyang Technological University (including National Institute of Education), Singapore Management University, Singapore Institute of Management, Singapore Polytechnic, Ngee Ann Polytechnic, Temasek Polytechnic, Nanyang Polytechnic and Republic Polytechnic.

Statistics on persons who completed or participated in vocational or professional skills training courses are provided by the Institute of Technical Education, Singapore Workforce Development Agency, Building and Construction Authority Academy, Ong Teng Cheong Labour Leadership Institute, Institute of Systems Science (National University of Singapore) and Singapore Human Resources Institute.

The **National University of Singapore** (NUS) was established in August 1980 with the merger of the University of Singapore (founded in 1962) and Nanyang University (founded in 1955).

NUS has 14 faculties, namely:

- Faculty of Arts and Social Sciences;
- Faculty of Dentistry;
- Faculty of Engineering;
- Faculty of Law;
- Faculty of Science;
- School of Computing;
- School of Design and Environment;
- Duke-NUS Graduate Medical School Singapore;
- NUS Business School;
- NUS Graduate School of Integrative Sciences and Engineering;
- Lee Kuan Yew School of Public Policy;
- University Scholars Programme;
- Yong Loo Lin School of Medicine; and
- Yong Siew Toh Conservatory of Music.

The NUS Graduate School for Integrative Sciences and Engineering, Lee Kuan Yew School of Public Policy and Duke-NUS Graduate Medical School Singapore offer higher degree courses only.

There is also a teaching institute known as the Institute of Systems Science.

NUS has also established Research Centres of Excellence as well as specialist research institutes and centres to promote research and advanced training in areas of strategic importance to the nation's development. These include biomedical & life sciences, translational medicine, nanoscience & nanotechnology, quantum information & technology, environment & water technology, interactive & digital media, maritime research & transportation, logistics & supply chain management, and defence-related research.

The **Nanyang Technological University** (NTU) is a research-intensive university with globally acknowledged strengths in science and engineering.

The University has roots that go back to 1955 when Nanyang University was set up. In 1981, Nanyang Technological Institute (NTI) was established on the premises of the former Nanyang University. In 1991, NTI was inaugurated as NTU with the absorption of the National Institute of Education. The alumni rolls of the former Nanyang University were transferred to NTU in 1996.

The University is organised into four colleges with 12 schools, and four autonomous entities as follows:

Colleges

College of Engineering:

- School of Chemical and Biomedical Engineering;
- School of Civil and Environmental Engineering;
- School of Computer Engineering;
- School of Electrical and Electronic Engineering;
- School of Materials Science and Engineering; and
- School of Mechanical and Aerospace Engineering.

College of Business

- Nanyang Business School

College of Science:

- School of Biological Sciences; and
- School of Physical and Mathematical Sciences.

College of Humanities, Arts & Social Sciences:

- School of Art, Design and Media;
- School of Humanities and Social Sciences; and
- Wee Kim Wee School of Communication and Information.

Autonomous entities

- National Institute of Education (NIE);
- S Rajaratnam School of International Studies; and
- Earth Observatory of Singapore (EOS)
- Singapore Centre on Environmental Life Sciences Engineering (SCELSE).

The schools offer undergraduate programmes as well as a range of graduate programmes leading to Master degrees, Doctor of Philosophy degrees and graduate diplomas.

To facilitate multi-disciplinary research and advanced training, NTU has set up interdisciplinary institutes such as the EOS, SCELSE, Nanyang Environment and Water Research Institute, Energy Research Institute @ NTU, Institute for Media Innovation, Fraunhofer IDM @ NTU, Nanyang Centre for Public Administration, Institute of Catastrophe Risk Management, Institute of Sustainable and Applied Infodynamics, and Biomedical Structural Biology.

NTU started a life sciences graduate school at its one-north campus in 2009 and partnered Imperial College London in 2010 to set up a new medical school in Singapore, the Lee Kong Chian School of Medicine, which is Imperial's Faculty of Medicine's first medical school outside of the United Kingdom.

The **Singapore Management University** (SMU) incorporated in 2000, is Singapore's third university. The University is known for its broad-based, multi-disciplinary American-style pedagogy which uses the MBA approach to teaching undergraduates in small seminar-style classes.

SMU comprises six schools, namely:

- Lee Kong Chian School of Business;
- School of Accountancy;
- School of Economics;
- School of Information Systems;
- School of Law; and
- School of Social Sciences.

SMU has a wide postgraduate offering including MBA, Executive MBA and specialised master's programmes in areas such as wealth management, information technology for financial services and professional accounting. The University aims to produce multi-disciplinary, industry-relevant faculty research that generates evidence-based solutions derived from insights that cross disciplines, addresses Asian issues of global relevance, and bridges theory and practice. Numerous research institutes and centres are established at SMU in close collaboration with industry partners. Public and customised programmes are available through the University's Executive and Professional Education arm.

The **Singapore Institute of Management** (SIM Group) was founded in 1964 as a membership society under the Economic Development Board. Today, it has evolved into a private and independent professional and learning institution with over 34,000 corporate and individual members. The SIM Group's core services include the following:

- SIM University (UniSIM) is a privately-funded Singapore university dedicated to the education and lifelong learning of working professionals and adult learners. Approved by the Ministry of Education to issue local degrees, UniSIM's four Schools offer more than 40 academic programmes across multi-disciplines and its current enrolment is more than 12,000 students.
- SIM Global Education offers overseas degree programmes through its partnerships with established international universities and institutions from the US, UK, Australia and Switzerland. With an enrolment of over 19,500, SIM Global Education offers more than 60 full-time and part-time academic programmes at postgraduate, undergraduate, diploma and certificate levels.
- SIM Professional Development trains more than 10,500 professionals annually through its 600 seminars, workshops and conferences.

The **Singapore Polytechnic** (SP), founded on 27 October 1954, is the first polytechnic to be established in Singapore.

SP offers full-time studies leading to diploma, advanced diploma, specialist diploma and other post-diploma qualifications in various fields, including Applied Arts, Aerospace, Architecture & Built Environment, Business & Finance, Chemical & Life Sciences, Communication, Design, Digital Media, Infocomm Technology, Engineering, Health & Nutrition, Management, Maritime, Optometry and Social Sciences. Some courses are offered part-time through the Polytechnic's Professional & Adult Continuing Education (PACE) Academy for working adults.

In FY 2010, the Polytechnic offered a range of 49 full-time courses at diploma level.

In addition, advanced diploma and specialist diploma courses are also available for polytechnic graduates and working professionals to upgrade themselves.

The **Ngee Ann Polytechnic** (Ngee Ann) assumed its name in April 1982. It was initially established as a private institution in 1963 under the name of Ngee Ann College. It became a public institution and was renamed Ngee Ann Technical College in 1968.

The Polytechnic offers 47 full-time diploma courses, 10 part-time diploma courses, 4 advanced diploma courses and 6 specialist diploma courses.

In 2010, a total of 37 runs of 21 short courses and 48 runs of 18 Workforce Skills Qualification System (WSQ) courses were conducted through the Polytechnic's Continuing Education and Training (CET) Academy. These courses were aimed at upgrading the skills and knowledge of the general workforce.

In addition, Ngee Ann conducted 28 runs of 20 customised in-company training programmes based on the specific training needs of the organisations concerned.

The **Temasek Polytechnic** (TP) was established on 6 April 1990. It is organised into seven schools, namely Applied Science, Business, Design, Engineering, Humanities & Social Sciences, Informatics & IT, and Tourism Academy at Sentosa. They offered a total of 52 diploma courses in 2010. TP also conducts part-time courses for working adults.

The **Nanyang Polytechnic** (NYP) was established in 1992 to provide quality education and training opportunities for school leavers. The Polytechnic currently has seven schools offering a wide range of courses in Business Management, Chemical & Life Sciences, Design, Engineering, Health Sciences, Information Technology, and Interactive & Digital Media.

NYP offers a host of full-time diploma courses for pre-employment training and various continuing education courses at advanced diploma, specialist diploma and certificate course levels.

The **Republic Polytechnic** (RP) was established on 1 August 2002 as the fifth polytechnic in Singapore.

RP has six schools and a centre offering 36 courses and specialised programmes in Information & Communications Technology; Engineering; Applied Science; Technology for the Arts; Sports, Health & Leisure; Hospitality, as well as Culture and Communication.

In addition to offering diploma courses, RP's Centre for Professional Development is committed to promoting life-long learning among working adults through a suite of continuing education and training (CET) programmes.

The **Institute of Technical Education** (ITE) was established on 1 April 1992 as a post-secondary institution which provides pre-employment training for secondary school leavers and Continuing Education and Training (CET) for adult learners.

ITE offers full-time training and traineeship programmes to school leavers, as well as skills training and academic education programmes to adult learners. Employees can also undergo On-the-Job Training in companies which are Certified On-the-Job Training Centres. In addition, ITE conducts skills evaluation tests for public candidates and instructional skills and related programmes for industry trainers.

Full-time training is offered to secondary school leavers with the GCE 'O' and 'N' qualifications in Applied & Health Sciences, Business & Services, Design & Media, Engineering, Hospitality and Info-communications Technology. The full-time courses lead to the award of the Higher National ITE Certificate (*Higher Nitec*) and National ITE Certificate (*Nitec*). In collaboration with overseas institutions, ITE offers Technical Diploma programmes in niche areas, as another pathway for upgrading.

Traineeship is an 'earn-as-you-learn' scheme for secondary school leavers. It has 2 training components, namely On-the-Job Training (OJT) and Off-the-Job Training (Off-JT). OJT is

conducted by the sponsoring companies on their premises. Off-JT could be provided by ITE, industry training centres or companies certified by ITE as Approved Training Centres.

Adult learners may choose from a range of *Master Nitec*, *Higher Nitec*, *Nitec* and ITE Skills Certificate (ISC) courses to upgrade their skills. All these programmes are offered in modules, giving adults the flexibility to sign up for training based on their needs.

For adult learners who wish to upgrade themselves academically, an option offered by ITE is the part-time General Education Programme from Secondary One Normal to GCE 'N' and GCE 'O', which provides adult learners the opportunity to acquire academic qualifications which are otherwise obtained through the formal school system.

The **Singapore Workforce Development Agency** (WDA) aims to enhance the competitiveness and employability of workers by helping them acquire skills to adapt in a changing economy.

To achieve this, WDA works with industry leaders, labour unions, employers, economic agencies, professional associations and training organisations.

WDA also supports the growth of Singapore industries by building a pipeline of competent workers through the constant upgrading of workers' skills and raising industrial performance standards.

The Singapore Workforce Skills Qualifications System (WSQ) was launched in October 2005. It is a national qualifications system, which provides training and certifications for adult workers to obtain nationally recognised and industry-relevant qualifications. WSQ emphasises flexible competency-based adult learning, open access to skills upgrading and clear career progression pathways for workers to upgrade their skills.

The WSQ is anchored on the development of skills and competencies linked to occupational structures, in close consultation with industries. Under WSQ, competency standards, assessment strategies and training curriculum incorporating adult learning principles, are established for each key industry.

In 2010, WDA developed another two WSQ frameworks in Environmental Cleaning and Business Management. Together with earlier frameworks rolled out since 2005, WDA has to-date developed 26 WSQ frameworks covering key sectors of the economy.

In addition, WDA has appointed 50 CET centres to provide skills training for various sectors such as aerospace, tourism, security and new areas like the creative industries.

WDA introduced the Professionals Conversion Programme (PCP) in April 2007 to help professionals, managers, executives and technicians (PMETs) convert and upgrade their skills and make career switches in sectors, such as precision engineering, aerospace, healthcare, community & social services and training. As at December 2010, 3,600 PMETs had either successfully completed training or are still undergoing training since the start of the PCP.

Since January 2009, the National Trades Union Congress (NTUC) has consolidated its CET efforts including the Job Re-creation Programme (JRP), career assistance and placement, and the implementation of WDA programmes such as Skills Programme for Upgrading and Resilience, etc under its Employment and Employability Institute (e2i). In 2010, e2i assisted more than 40,000 workers in industries such as Construction, Food & Beverage, Retail, Tourism and Security.

The Skills Development Fund (SDF) was set up in 1979 with the Skills Development Levy collected from employers. The SDF provides course fee subsidies to employers and training institutions to support the skills upgrading of Singapore's workforce. Over the years, the SDF has helped Singapore companies develop a strong training culture and strengthened the concept of lifelong learning so that workers can keep up with the changing demands of the employment landscape.

The Lifelong Learning Endowment Fund (LLEF) was set up in March 2001, with an initial capital of \$500 million. Through further capital contributions from the Government, the capital sum of the LLEF stood at \$3.1 billion as at FY 2009¹. WDA taps on the LLEF to fund lifelong learning initiatives, including employment facilitation for unemployed Singaporeans through its career centres operated in collaboration with the Community Development Councils; development of Singapore's Continuing Education & Training (CET) infrastructure and capability under the WSQ, and learning outreach and promotion. The LLEF complements the SDF to ensure a holistic approach to the upgrading of Singapore's workforce.

The **Building and Construction Authority** (BCA) was established in April 1999 and its mission is to shape a safe, high quality, sustainable and friendly built environment.

BCA Academy is the education and research arm of BCA. It provides quality training, learning and research programmes for the advancement of the building industry and the development of an excellent built environment. It plays a key role in ensuring that the skills and expertise required to shape a safe, high quality, sustainable, and friendly built environment are readily available. The Academy aims to serve as the national centre for the training and education of craftsmen, technical and professional personnel for the industry, and for research and development on the built environment.

¹ Period from April 2009 to March 2010

The **Ong Teng Cheong Labour Leadership Institute** was founded as the Singapore Institute of Labour Studies in 1990 by the National Trades Union Congress (NTUC). In 2002, the Institute changed its name to Ong Teng Cheong Institute of Labour Studies to commemorate the contributions of the late Mr. Ong Teng Cheong, a former Secretary-General of the NTUC and President of the Republic of Singapore. In 2009, the institute integrated with NTUC Leadership Development Department and took on its present name to create the hub for labour leadership development and advancing tripartism.

The Institute is guided by a Board of Governors comprising senior leaders from the government, trade unions, industry and academia. The Institute offers various programmes as follows:

- Continuing Professional Development Programmes;
- International Programmes;
- Progressive Leadership Development Programmes;
- Public Courses; and
- Union-Management Programmes.

The **Institute of Systems Science** (ISS) of the National University of Singapore provides IT graduate education and professional development programmes to develop infocomm leaders and drive business and organisation innovation.

ISS is accredited by leading international and local accreditation and certification bodies to deliver programmes that lead to recognised certifications and qualifications. It also conducts research, organises IT management and technology update seminars and provides consulting services to the industry. The Singapore e-Government Leadership Centre in ISS helps government leaders innovate and transform through e-Government education, and consulting.

ISS programmes incorporate a strong industry orientation and are delivered in the classroom and/or through e-learning. Over 71,000 people from 138 countries have benefited from these programmes. Sponsoring organisations include local and multinational corporations as well as public institutions such as the local universities, polytechnics and government agencies.

ISS offers two NUS graduate programmes, the Master of Technology in Software Engineering/ Knowledge Engineering, and the Graduate Diploma in Systems Analysis as well as a suite of professional development programmes. Its training programmes, consulting, research and seminars focus on IT planning and governance, business process reengineering & management, IT business analysis, service innovation, green infocomm, social media, IT project management & outsourcing, IT service

management, software & knowledge engineering, IT architecture & integration, infocomm security & risk management, IT implementation using advanced technologies, object-oriented analysis & design, and e-government planning and implementation.

The **Singapore Human Resources Institute** (SHRI) is a not-for-profit professional HR body in Singapore, representing over 3,000 human resource professionals. Founded in 1965, SHRI seeks to promulgate sound, effective and appropriate HR practices and maintain high standards of professionalism in human resource management and development. It also aims to foster a culture of continual learning that will ensure the development of Singapore's human capital into a highly educated, skilled and employable one.

The Institute offers lifelong learning opportunities through courses ranging from Basic Certificate in HRM to the Master of HR, MBA and Master of Applied Finance. With a wide selection of programmes covering human capital management, financial services and risk management, SHRI also provides corporate training and learning to executives and professionals.