

# TECHNOLOGY CAREERS

Applied Science  
Technologists & Technicians  
of British Columbia



## Shaping Our Future Building Careers in Technology



*From electronics to aviation, manufacturing to construction, mining to the environment, and biology to geology, technologists and technicians are working at the frontiers of Canadian industry contributing to the success of businesses and industries in BC, across Canada and around the globe. There are 4.5 million technologists, technicians and technology workers in Canada – by far the largest single component of our workforce (Canadian Technology Human Resources Board). They are expanding in number, increasing in value and contributing to Canada's economic growth.*

*Yet... we cannot currently ensure a steady and sustainable supply of technologist and technician professionals as these careers remain largely 'invisible' to the public at large and are not promoted to the same extent as other career choices.*

BUILDING TOMORROW THROUGH ACTION TODAY

# An Impending Crisis...

The demand for technologists and technicians is steadily rising and could soon develop into a serious labour shortage and economy-braking crisis. During an industry conference and consultation held by the Applied Science Technologists & Technicians of British Columbia (ASTTBC) in Surrey, BC in June 2005, it became abundantly clear that BC faces a major labour challenge in the availability of trained and experienced technologists and technicians. It was clearly demonstrated and reinforced by panellists, speakers and delegates from a wide range of industry stakeholder groups that the demand by employers for technologists and technicians is already much greater than the supply.

Technology is a major facet of all aspects of a modern economy and the demand for technologists and technicians in BC will only continue to increase. But there is a serious problem – a disconnect between this rising demand and the public's awareness of these careers and of youth entering these fields of study. Just as employers are demanding more trained professionals, our post secondary programs are closing due to low enrolments and increasing costs. As well, foreign-trained professionals are unable to quickly and effectively transfer into Canadian job opportunities where they could be contributing their extensive training and experience gained in other countries.



## Meeting Demand ... Promoting Opportunities

The challenge for industry, educators and government – for all stakeholder groups – is to ensure that people interested in or suited to technology careers are informed of the opportunities that exist, the post secondary training and professional certification that is available, and to ensure that employers have access to the trained and certified professionals they need to compete in a global marketplace.

The impending 'employment gap' will need to be filled by currently underutilized human resources, yet no coordinated plan exists to encourage them to join this workforce. Youth, women, foreign-trained professionals, aboriginals and adults in career transition make up a vast potential pool of future technology professionals – if they are exposed to the right information at the right time that demonstrates the opportunities that exist in science and engineering technologies. Educators, professional associations, employers, government, and career and guidance counsellors all have an essential role to play in promoting technology careers to these groups and encouraging suitable candidates to enter the field.

*"Human capital has and will become the ultimate scarce resource. Technologists and technicians are a precious commodity because they not only know what needs to be done, but also know how to do it with the right tools and equipment."*

Roslyn Kunin, Economist

# Critical success factors... ...challenges that must be met!



The following challenges have been identified as the critical success factors that must be addressed in order to minimize the impact of the looming skills crisis...

## Increase Technology Career Awareness

There is a general lack of public understanding of the key role technologists and technicians play in industry today, the significance of their contribution to the BC economy, and of the diverse and exciting career opportunities and income potential these careers provide. Awareness of science and engineering technology jobs has been lost between the perceived higher status of university degrees and the increasing profile of the trades.

## Promote Technology Career & Education Pathways

There has been a general decline in interest in electronics, automation and other technology programs with applicants selecting other career options. Jobs are going unfilled and enrolment in post secondary technology programs has declined to the point that programs are now being cancelled. People interested in technology careers must be made aware of the career opportunities that exist, the prerequisites required and the post secondary training that is available. Although many of the key components and training programs are currently available, they need to be more clearly interlinked to allow for the transfer of credits, the recognition of prior learning, and bridging between the trades, technology and university-based careers.

*"The technologies... will change everything... we cannot afford to get trapped in the old paradigm. We must plan for today by looking to the future not the past."*

Dave Chalk, High Tech Expert,  
TV Host and Futurist

*"The general public has a lack of understanding of the role of technologists and technicians, and of their significance in our world."*

Tom Roemer, Associate Dean, Science  
& Technology, Okanagan College

## Attract & Recruit Students & Youth

Youth are not enrolling in college technology programs and are not taking the required science, math and physics prerequisites in high school. In a recent survey, 75% of youth agreed with the statement *"university degrees lead to better job opportunities than college diplomas"* and most high school students claim that they plan on attending university. This view is encouraged by key influencers of youth including parents and school counsellors, who often encourage youth to pursue a degree versus technology training or trade apprenticeship.

## Integrate Foreign-trained Professionals

Immigration is a huge source of labour and skills. New immigrants will account for 70% of Canada's total net new labour force and this number will rise. New immigrants, however, are often not integrated into the workforce quickly or efficiently, resulting in extended unemployment or under-employment. We must work towards a common method and system for assessing both formal credentials and competencies from past work experience, and linking skilled professionals with employers sooner.

## Increase Corporate/Employer Recruitment & Participation

BC employers, both large and small, are suffering from labour shortages and a lack of available trained and experienced technology workers. If this remains the case, individual companies (as well as the overall BC economy) will be limited in their growth, or worse, unable to compete in the local, national and global marketplace. The issues of recruitment and retention of employees are key to corporate success, and must be addressed more broadly and with a view to the long term.

*"There is limited awareness of technology careers and options among youth, educators and parents, and enrolments in post secondary technology programs are declining."*

Don Graham, Chair,  
Electronics and Engineering  
Thompson Rivers University

*"Among new immigrants arriving in 2002, 46% held a university degree and a further 13% held some other form of post secondary credential such as a non-university diploma or trade certificate."*

Canadian Labour and Business  
Centre, Immigration & Skills  
Shortages Handbook

*"Employers need a different approach to recruiting and retaining 'Generation Y'... they are the most able to adapt and learn, but least likely to want to work in traditional workplace arrangements; they respond to different rewards and incentives."*

Kerry Jothan, CEO  
Human Capital Strategies



*"We must establish trades and technologies as respected career choices."*

Josh Blair, VP, TELUS

*"70% of parents expect their youth to go to university, when in reality only 20% do so."*

Ed Wong, VP Education Partnerships  
Business Council of BC





# What YOU Can Do... Stakeholder Group Action Steps

Here's what is required now to meet the growing labour market demand for technologists and technicians...

BUILDING TOMORROW THROUGH ACTION TODAY

## Government

- Provide funding and support for initiatives that promote careers in the science and engineering technologies, a category of careers distinct from information and computer technology on the one hand and the trades on the other.
- Provide added funding to post secondary colleges and institutes for the development, maintenance and upgrading of technology training programs.
- Modify existing legislation to ensure the full utilization of technology professionals. Continue to recognize technology professionals within government legislation that identifies 'qualified professionals'.
- Partner with associations and industry to develop a pilot program for integrating foreign-trained professionals (cross-cultural awareness, ESL training, job search skills, credential recognition, work placements/internships) and reduce the complexity and length of the immigration process for foreign professionals.
- Ensure the K–12 education system supports and encourages more students to pursue and succeed in math and the sciences while building student awareness of careers in the technologies.

## Employers & Companies

- Sponsor and partner in innovative technology training and career awareness initiatives and programs. Promote technologists and technicians as respected career paths, and support professional certification and registration with ASTTBC, calling for these credentials in career ads while also encouraging employees to become registered and to take an active role in the Association.
- Encourage employees to serve on Parent Advisory Councils, meet with teachers, participate in school career days as well as science and tech fairs, and establish scholarships and relationships with schools, trustees and other key influencers.
- Promote and create demonstration projects to expand workforce career development, along with regional recruitment and retention programs, forming employer groups within sectors and among small and medium size enterprises.
- Adopt progressive recruitment, retention and human resources strategies that recognize the value of human capital investment, and attract and inspire employees by providing mentoring, career planning, leadership development and top-notch training.

## Associations

- Create campaign promoting the essential role of technologists and technicians, career opportunities available, and consolidate/update existing technology career information providing one-stop locations or a web-based 'technology career portal'.
- Facilitate the integration of foreign-trained professionals, working with government, employers and educational institutions to streamline credentialing and Prior Learning Assessment & Recognition (PLAR) programs, and coordinate workplace preparation, job placement and mentoring programs.
- Partner with, and present a strong business case to, government, educational institutions and industry to establish the urgent need to increase and expand technology training programs and funding throughout all provincial regions, tying efforts to local employer needs and jobs.
- Create K–12 school promotions to build technology career awareness with youth including: 'techs in schools' mentoring programs; interactive resources and 'real-life' labour market info and stories; summer 'tech camps'; 'young tech champions' awards; and resource kits for teachers and guidance counsellors. Use methods and media that 'speak' to youth.

## Post Secondary Educators

- Promote technologist and technician education options through promotional campaigns linked to labour market demand. Produce a flowchart that clearly depicts the links between the education and credentialing options in science, engineering and technology in Canada, and how this may differ from models common in other parts of the world.
- Tie technology programs to recruitment needs and timetables of local industry and employers – customize training schedules, formats and content to specific employer group needs while maintaining core standards and foundational skills.
- Provide opportunities to more easily 'bridge' education and certification between trades, technologies and applied sciences, and improve communication between funders and programs.
- Embed 'soft skills' curriculum within technology and other programming to meet employer demand for these diverse and flexible skills increasing student job preparation and advancement potential.

## Career & Guidance Counsellors & Teachers

- Educate students and parents about the incredible career opportunities available in the lesser known technologies by providing 'real-life' labour market data in the career and personal planning courses and through programs such as technologists and technicians in schools, all using interactive resources and media directed at teens.
- Promote technology education through colleges, institutes and universities as a progressive and viable schooling option equally with university programs and trade apprenticeships, and help students in selecting appropriate prerequisite science and math courses.
- Help shift student and parent misperceptions about technology careers promoting the key role they play, the certification and professional designations available, and the challenging and interesting work.
- Integrate technology career titles and education options into career testing and career exploration resources, materials, guidebooks and libraries, and promote technology career options to all potential groups including youth, women, aboriginals, immigrants and adults in career transition.

## Technologists & Technicians

- Actively participate in your personal career development, growth and advancement by pursuing advanced education, professional development and credentialing.
- Use a systematic process for tracking credentials and certification courses, professional experience, and planning for professional development opportunities, such as ASTTBC's CareerManager® system.
- Obtain and develop the soft skills (communications, customer service, project and people management) that are sought by employers in order to prepare for career advancement and leadership roles.
- Volunteer for and support initiatives that build the profession such as on-the-job mentoring of trainees and foreign-trained professionals, 'techs in schools' programs and career awareness presentations.

← OLYMPICS IN BC

2002

2006

2010

2014

# Issuing an urgent challenge...

We need the participation of industry leaders and stakeholder representatives willing to invest the time, money and effort needed to build the broad strategic plan and supporting infrastructure required to ensure that BC employers have a sufficient supply of qualified technology professionals well into the future. If we are bold in our approach and come together to create a comprehensive strategy, we can open a world of opportunities for Canadians looking for long term career success.



## ASTTBC Responds...



JOHN LEECH, Executive Director & Registrar, of the Applied Science Technologists & Technicians of British Columbia, has committed ASTTBC to spearheading a task force to formulate an industry approach to this critical labour market and social policy issue. Building on the success of the TechWORKS! initiative, ASTTBC will continue its leadership role in advancing and promoting careers in technology, and will create a new 'careers in technology' portal. The TechWORKS! web site will be updated to include links to technology career information, educational institutions and other stakeholder initiatives, forming the basis for this new career portal. As well, plans are in the works for a foreign-trained professionals program to help immigrant technology professionals integrate into the Canadian labour market.

*"We will only build for tomorrow if we take action today. The vision, passion and action-oriented nature of various stakeholders that have been consulted so far has been tremendous, and is an early indication of the success we can expect when we all work together in building careers in technology."*

**John Leech, ASCT, CAE**  
Executive Director & Registrar, ASTTBC



In June 2005, the Applied Science Technologists & Technicians of British Columbia (ASTTBC) hosted 'BUILDING CAREERS IN TECHNOLOGY... a Strategic Planning Conference'. The conference brought together representatives from industry, employers, K-12 and post secondary education, career counselling, government, professional associations, technologists and technicians, engineers and other stakeholder groups to begin building a broad strategic plan to ensure that BC employers have a sufficient supply of qualified technology professionals well into the future.

The conference was a great success generating excitement and enthusiasm around the theme... 'promoting and building careers for technologists and technicians'. A full conference report is available at... [www.asttbc.org/conference](http://www.asttbc.org/conference)



The TechWORKS! web site provides excellent information and career profiles for technologist and technician careers, and will be updated with more information and links to other technology career information and stakeholder initiatives.

[techworks.asttbc.org](http://techworks.asttbc.org)

## Building momentum, forging partnerships...

It's time for a concrete action plan and a comprehensive approach to promoting and building careers in technology! We need the commitment and participation of associations, employers, government, educators, and individual technologists and technicians who will come together to champion the cause and implement the proposed strategies. So read through the stakeholder group action steps – see 'What YOU Can Do', brainstorm ideas with colleagues, co-workers and industry partners. *Help build the momentum!*

2018

2022

2026

2030

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## A Call to Action...

If you are ready to contribute your ideas, support, time or sponsorship towards this initiative, or provide your feedback regarding this position paper, please contact ASTTBC.

We look forward to working with you as we build a future of opportunity in technology.



This position paper is available online at... [www.asttbc.org/shapingourfuture](http://www.asttbc.org/shapingourfuture)

## ASTTBC... Regulating Technology Professionals

### Registration as ASCT or CTech

Technologists and technicians gain recognition of their academic and experiential qualifications through registration with ASTTBC as either an Applied Science Technologist (ASCT) or Certified Technician (CTech). The Association currently registers qualified practitioners in the following disciplines...

- Biological Sciences
- Biomedical Engineering
- Building
- Chemical
- Civil
- Electrical
- Electronics
- Environmental
- Forest Engineering
- Gas & Petroleum
- Geomatics
- Industrial
- Information
- Mechanical
- Metallurgical
- Mining

Registrants meet the national standards for education and work experience, follow a code of ethics and practice standards, and are required to maintain technical competence through continuing professional development to fulfill their work as a technology professional. The ASCT and CTech professional designations are recognized by an increasing number of employers as indicating a standard of professional excellence.

The titles of Applied Science Technologist and Certified Technician, and the designations ASCT and CTech are protected under the ASTT Act. The use of these titles or designations is restricted to those persons who are registered and in good standing with ASTTBC.

### Technical Specialists

ASTTBC also offers registration through its Special Certification program which is distinct from the Association's registration program for technologists and technicians. Special certification recognizes individuals with a level of expertise within a clearly defined technical specialty.

Special Certification programs include...

- Building Design
- Construction Safety
- Fire Protection
- House & Property Inspection
- Onsite Wastewater
- Public Works Inspection
- Site Improvements Surveys
- Steel Detailing
- Timber Cruising

*ASTTBC registration as an ASCT or CTech is a prerequisite to certification as a Technical Specialist in Building Design, House & Property Inspection and Site Improvements Surveys.*

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### About ASTTBC...

**Our mission...** to advance the profession of Applied Science Technology and the professional recognition and career development of Applied Science Technologists, Certified Technicians and other members in a manner that serves and protects the public interest.

The Applied Science Technologists & Technicians of British Columbia (ASTTBC) is a self-governing professional association that regulates standards of training and practice, ensuring that BC's technologists and technicians maintain a high standard of performance and professionalism. With more than 8,500 members and technical specialists working throughout the province, ASTTBC is taking a leadership role in developing technology career pathways and promoting technology careers of tomorrow. ASTTBC is a constituent member of the Canadian Council of Technicians and Technologists (CCTT) with a combined voice of 45,000 technology professionals nationally.

ASTTBC ... THE ASSOCIATION FOR TECHNOLOGY PROFESSIONALS IN BRITISH COLUMBIA