

# Why Should You Take Computer Technology/Engineering Courses?

By Mr. Laxton

Globalization in the past twenty years has had a great impact on employment, wages and technology in Canada. Competition for post-secondary education has increased with the disintegration of the manufacturing industry and the increase in foreign outsourcing. In order for Canadian companies to compete on the national and international market, industry has had to become innovative and invest in new technology. Today's students must educate themselves in relevant college and university programs, and do well academically to become attractive to these companies and to the changing global marketplace.

Science, engineering and/or technological educations are the best tools for students to achieve success in this constantly demanding and changing high-tech world. Students who educate themselves will earn the credentials (trade licenses, diplomas or degrees) to open doors to their desired careers. Credentials are important, especially here in Canada because most professions require them for entry level into a profession. Even the trades require licenses before workers can start working in a trade, and in many cases they are needed to join a trade's union.

**SPOTLIGHT ON SCIENCE LEARNING: The High Cost of Dropping Science and Math: 70 per cent of top jobs require Science, Technology, Engineering & Math (STEM) education, including the skilled trades.**

Canadian students who complete secondary school with senior-level mathematics, science and technology courses face futures with greater options, and a wider variety and range of career opportunities. Students who dream of becoming engineers, architects, auto mechanics, construction workers, designers, nurses, lab technicians or trade technicians would do well taking computer technology courses at Abbey Park. It takes time to build these skills and high school is the place to start. Students who do not take time to build their computer knowledge and skills in high school will feel stressed when they reach college or university because they don't have the necessary computer and technical skills required in all STEM programs. If you plan a career in any kind of field that relates to engineering, science and technology, you are encouraged to take computer technology and computer science courses to enhance your overall computer technical skills. Knowing and understanding how computers work (software & hardware), broadens a student's knowledge about how current and future computer technologies work in the real work world.

All STEM fields are now computational, which means that all these fields use high-speed, high performance computing (HPC) computers and high-level software in some way to simulate practical scientific research. These new computational fields of study are growing exponentially, such as, computational biology, material science, chemistry and physics. All these new fields construct mathematical models and quantitative analysis to solve scientific problems. Company research and development (R&D) is very expensive and this is why most companies have invested into

computational research using specialized HPC computer simulated software that is less expensive than hiring many researchers.

Computers are constantly changing and having a basic understanding of how the hardware and software work together will make it easier for students to migrate to more complicated systems in higher-education and the real world. Home computers and smart phones/iPads are not the same as computers that are used in the workplace. For example, students who enter the field of medicine are constantly forced to learn new software and computer equipment that doesn't even look like the computers or smart phones they know. Having a good working knowledge of computer systems and sub-systems (software & hardware) strengthens a student's ability to be able to understand the constantly changing computer hardware and software in the workplace. Students must not just take academic courses to learn how to memorize large amounts of theoretical information and data to pass exams. They need to acquire real technological skills to be able to critically think, and use more sophisticated scientific computers to solve real-world complex problems.

“There are skill sets and cultural attitudes that are not based on specific subject areas but are closely related to the capacity for innovation. These have variously been described as generic skills, advanced skills, enabling skills and 21st-century skills.” (taken from the Competing in 21<sup>st</sup> century skills race article – link on main webpage). The skills needed for 21<sup>st</sup> - Century jobs are higher than just knowing the MS Office software package. **Canadian companies are demanding more high-skilled employees with 21<sup>st</sup> - century skills who are already knowledgeable about technology, computers and standard software programs.** Computers are in every business whether accounting, manufacturing, science, medicine, education, retail, and many other technology related businesses.

Employers like perspective employees to already have these 21st-century skills that include knowledge of computers (hardware and software), the standard MS Office package, and how to use iPads, smart phones and related web software like Facebook, Twitter, and especially LinkedIn. Most companies do business online and students with web design skills, as well as, high computer knowledge and skills are favoured over students with little or no technological skills. The costs of training new employees can be very expensive and this is why most companies prefer potential candidates that already have these highly desirable technical skills. Candidates with these skills usually do better in employment interviews. During the hiring process, if a prospective employer determines that a potential candidate has had specialized computer and technical training, this looks favourably upon that candidate during the interview because the employer knows that he or she doesn't have to spend a lot of money to train that candidate.

If students are planning to attend college or university for business, it's still important to understand computer technology and computer science concepts because all businesses whether large or small in Canada use technology or sell technology in some way. Having strong computer knowledge and skills, builds confidence in a person's ability to compete in the business marketplace. Businesses are requiring employees to do more with less, especially small businesses, and having the technical knowhow, will definitely be an asset to most students, especially students who are looking for their first real jobs at the beginning of their careers.

There is one more valuable reason for people to continually upgrade their computer and technological skills. People who are looking to move up in companies are turned down every day for many reasons; the main being a lack of the proper skills to do the job. They rise to their level of “**incompetency**” to do higher-level jobs. For example, I knew a man who worked as a supervisor in a very large medical factory. He was well educated and respected and very good at his job. He applied for a higher position in the company and was turned down because he lacked the knowledge and skills to work at the higher level. He also failed to continue to upgrade his computer and software skills when the company upgraded to newer software and hardware. He allowed himself to become a “**technological dinosaur**” for failing to keep up with the technological changes in his field. Students who fail to realize that the world now runs on very high-speed computers and sophisticated software are setting themselves up for failure for not properly preparing themselves adequately with the computer technical knowledge and skills they need to move to post-secondary institutions and their STEM programs like science, technology and engineering. Science and engineering programs are changing and moving toward computational research. Students cannot just take math and science in high school to be prepared for these programs.

Technology and computers are everywhere in society. Science, Technology and Engineering are the prominent careers of the future. Take time in high school to take computer technology courses to enhance your computer technical skills and abilities. This will ultimately make you more attractive to future employers and you will feel better about having acquired the 21<sup>st</sup> -Century skills needed to succeed in this constantly changing technological world.