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Recovering from the Pandemic

Réagir à la COVID-19



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RESPONDING TO COVID-19

RÉAGIR À LA COVID-19

By/Par Jackie Fritz

Realizing the devastating affect the Covid-19 pandemic has brought, and continues to bring, to our country and the world, staff and students at Canada's colleges and institutes have stepped forward to offer their skills, expertise and facilities to help their fellow citizens in many different ways.

From applied research to community support and information management, many institutions of higher learning are utilizing their staff, students, alumnae and equipment for practical use in dealing with our current situation.

The ways they are helping are as diverse as the courses and programs Canada's colleges provide to their students.

Many colleges are using their equipment to produce Personal Protective Equipment (PPE) for health care providers on the front lines.

3D printers are being utilized to make face shields and components of other equipment. Other manufacturing equipment has been redirected to fabricate medical masks including N95.

Other colleges are offering to redeploy manufacturing equipment and labs to aid business in their production of medical devices and supplies.

College alumnae are also stepping up with their contribution of medical equipment made in their factories and other workspaces. One alum from BCIT developed a lightweight face shield that attaches to the brim of any standard ball cap.

Colleges with medical courses have donated the hospital beds, PPE and lab equipment that would normally be used by the students to hospitals in our communities that are fighting the crisis.



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25 YEARS

Prenant acte des effets dévastateurs que la pandémie de COVID-19 a eus et continue d'avoir sur notre pays et sur le monde, le personnel et les étudiants des collèges et instituts canadiens ont pris l'initiative d'offrir leurs compétences, leur expertise et leurs installations afin d'aider leurs concitoyens de toutes les façons possibles.

De la recherche appliquée au soutien communautaire et à la gestion de l'information, bon nombre d'établissements d'enseignement supérieur mettent à contribution leur personnel, leurs étudiants, leurs anciens et leur équipement pour trouver des solutions pratiques à notre situation actuelle.

L'aide qu'ils apportent est aussi diversifiée que les cours et les programmes offerts par les collèges canadiens à leurs étudiants.

De nombreux collèges se servent de leur matériel pour produire des équipements de protection individuelle (EPI) aux prestataires de soins de première ligne.

Les imprimantes 3D servent à fabriquer des visières et des composantes d'autres équipements. D'autres outils ont été réorientés sur la fabrication de masques médicaux N95 et autres.

D'autres collèges proposent un redéploiement de leur matériel de fabrication et de leurs laboratoires afin d'aider les entreprises à produire des fournitures et appareils médicaux.

Des diplômés font également preuve d'initiative en offrant du matériel médical fabriqué dans leurs usines et autres espaces de travail. Un diplômé du BCIT a développé une visière légère qui se fixe à l'avant de n'importe quelle casquette standard.

Des collèges offrant des cours de médecine ont fait don des lits d'hôpital, de l'EPI et de l'équipement de laboratoire – normalement utilisés par leurs étudiants – aux hôpitaux de nos collectivités qui luttent contre la crise.

Some colleges with Respiratory Therapy courses have donated the ventilators used by their students and have even sent their students to the front lines, monitoring Covid-19 patients who need this equipment. 117 respiratory therapist students from Ontario colleges were called into service for this purpose.

One graduate from Seneca College even converted his 25,000 square foot brewery, All or Nothing Brewhouse, into a hand sanitizer manufacturing facility.

Colleges are opening their residences to provide temporary housing options for healthcare professionals, or even converting some of their existing space into emergency field hospitals.

Other students and alumnae are working to make PPE more comfortable to wear by designing and donating items such as ear savers and headbands for the country's essential workers.

Paramedic students from Loyalist College were able to graduate early and hit the ground running while helping out their beleaguered colleagues.

Collaborating with local industry, faculty from the Respiratory Therapy and BioMedical Engineering Technology courses at St. Clair College teamed up to design a device that will automatically inflate and deflate a manual ventilator bag, freeing up health care providers to deal with the increasing volume of Covid-19 patients.

Several health information management students have been deployed to assist with record-keeping and tracking the spread of the virus.

It's not just equipment and supplies that colleges and institutes are providing in the battle against Covid-19, there are many community supports that now exist due to the generosity of the colleges and students.

For example, College of the North Atlantic offers free wellness supports to the public that are aimed at mental and physical health during the pandemic.

There are a number of colleges who are assisting those in need of food security. By providing kitchen space in cutting-edge facilities, they allow volunteers to prepare and distribute food where it is greatly needed.

Some emergency food banks have received monetary donations while others benefit from the student volunteers who give of their time to help others in need, like a Vancouver Community College Jewellery Art and Design student who donates profits from her small business to the local food bank.

Researchers at Conestoga College are working on a mobile software application for supply chain workers that will allow them to maintain proper social distancing regulations.

Still other colleges are offering free online learning for business community members, helping owners adapt their businesses to the changing environment of today. Virtual workshops help small

Certains collèges offrant des cours d'inhalothérapie ont fait don des ventilateurs utilisés par leurs étudiants et ont même envoyé ceux-ci en première ligne, où ils surveillent les patients atteints de COVID-19 qui ont besoin de cet équipement. Pas moins de 117 étudiants inscrits en inhalothérapie dans les collèges de l'Ontario ont été appelés en renfort à cette fin.

Un diplômé du Collège Seneca a même converti sa brasserie de 25 000 pieds carrés, All or Nothing Brewhouse, en fabrique de désinfectant pour les mains.

Des collèges offrent aux professionnels de la santé un hébergement temporaire dans leurs résidences ou vont jusqu'à convertir certains de leurs espaces en hôpital de campagne.

D'autres étudiants et diplômés s'emploient à rendre l'EPI plus confortable par la conception de protège-oreilles et de serre-tête qu'ils donnent ensuite aux travailleurs essentiels du pays.

Des étudiants ambulanciers du Collège Loyalist ont réussi à obtenir leur diplôme à l'avance afin de passer à l'action sans tarder, à la rescousse de leurs collègues débordés.

Des professeurs d'inhalothérapie et de technologies du génie biomédical du Collège St. Clair ont fait équipe avec l'industrie locale pour concevoir un dispositif capable de gonfler et de dégonfler automatiquement un sac de ventilation manuel, permettant ainsi à des prestataires de soins de santé de s'occuper plutôt du volume croissant de patients atteints de COVID-19.

Plusieurs étudiants en gestion de l'information sur la santé ont été déployés afin d'aider à la tenue des dossiers et au suivi de la progression du virus.

Les collèges et instituts n'injectent pas que de l'équipement et des fournitures dans la lutte contre la COVID-19; bon nombre d'appuis communautaires doivent aussi leur existence à la générosité des collèges et de leurs étudiants.

Par exemple, le College of the North Atlantic offre au public des services gratuits de soutien au mieux-être qui visent à préserver la santé mentale et physique pendant la pandémie.

Divers collèges aident les personnes en situation d'insécurité alimentaire. En offrant de l'espace dans leurs cuisines dotées d'équipements de pointe, ils permettent à des bénévoles de préparer des repas et de les distribuer aux gens qui en ont grand besoin.

Certaines banques alimentaires d'urgence ont reçu des dons en argent, tandis que d'autres bénéficient de l'appui d'étudiants bénévoles qui donnent de leur temps pour aider les gens dans le besoin, telle cette étudiante en art et design de la bijouterie au Vancouver Community College, qui verse les profits de sa petite entreprise à la banque alimentaire locale.

Des chercheurs du Collège Conestoga sont en voie de développer une application logicielle mobile qui aidera les travailleurs de la chaîne d'approvisionnement à respecter les règles de distanciation sociale.

D'autres collèges encore offrent des cours en ligne gratuits aux gens d'affaires, afin de les aider à adapter leur entreprise à l'évolution forcée de l'environnement commercial. Des ateliers virtuels aident les propriétaires de petites entreprises à revoir

business owners in re-working and revamping various areas of their business. Courses will cover everything from setting up a new business to project management and business analysis.

And in the race to defeat Covid-19, biotechnology researchers from Lambton College have begun collaborative work with a bioceuticals company on a mini-string DNA-based vaccine designed to simulate an immune response artificially.

It's not just book learning going on at Canada's colleges. The leaders of tomorrow are coming together, helping each other and touching lives across the country. Now, more than ever, these are the qualities that come shining through in our colleges and institutes. 🙌

et à refondre divers secteurs de leurs activités. Ces cours traiteront de sujets variés allant de la création d'entreprise à la gestion de projet et à l'analyse opérationnelle.


Pour ce qui est de la course au vaccin contre la COVID-19, des chercheurs en biotechnologie du Collège Lambton ont amorcé une collaboration avec une société biopharmaceutique sur un vaccin à mini-chaîne d'ADN conçu pour simuler artificiellement une réponse immunitaire.

On n'apprend pas que dans les livres dans les collèges du Canada. Les chefs de file de demain se rassemblent, s'entraident et sont présents dans la vie des Canadiens, d'un océan à l'autre. Plus que jamais, ce sont des qualités qui transparaissent dans nos collèges et instituts. 🙌




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Open For Business:

Photo credit: Northern Lakes College

Adapting During the Covid-19 Pandemic

By/Par Jackie Fritz

During the unprecedented times created by the COVID-19 pandemic, Canada's colleges and institutes have had to make adjustments to the way they offer their courses, the way they house their students, even the programs they offer for student supports.

From quickly making adjustments to their existing programs and courses, to coming up with new community and student support services, colleges are adapting to social-distancing changes that affect their students.

Some colleges have begun applied research related to COVID-19 and its global impact. For example, one researcher at Mohawk College in Hamilton, Ontario is exploring how 3D mapping and drones can create virtual access to places that are closed due to COVID-19. Several colleges held applied research showcases virtually this year, still allowing students the important opportunity to share their work.

In fact, online learning has become the new reality for most colleges at this time. In many cases, switching to online learning occurred in a matter of days. College of the North Atlantic in Newfoundland and Labrador implemented a plan to move 181 of its 205 programs online in only four days.

British Columbia Institute of Technology has created an online fast-track education course for frontline nurses and healthcare providers to help them acquire the specialized knowledge they require to support critically ill patients, including those on ventilators. Since the program began, almost 4000 healthcare workers have registered.

Even courses that would generally require "hands-on" training have successfully transitioned to online learning. At Camosun College in Victoria, BC, their Automotive Service Technician Program utilized very specialized and specific software that allowed students to virtually simulate running diagnostics, repairing wiring, replacing components and more.

Saskatchewan Polytechnic Culinary Arts students were provided with ingredients in a socially-distant manner, collaborated online with their instructors and prepared their assigned dishes at home, with assessment based on photos of the finished product.

Community supports are important to Canada's colleges and institutes.

Canadore College in North Bay, Ontario is offering the general public free access to six general education courses, ranging from astronomy to world culture, film and the science of everyday life as a thank you to people who are self-isolating by giving them something productive to occupy their time.

Lethbridge College is offering a freely available open course on facilitating online learning for instructors, offering practical strategies to engage students in online classrooms.

Que ce soit en adaptant rapidement leurs programmes et leurs cours ou en offrant de nouveaux services aux étudiants et à la communauté, les collèges travaillent à contrer les effets négatifs de la distanciation sociale sur les étudiants.

Certains mènent des recherches appliquées en lien avec la COVID-19 et ses effets planétaires. Par exemple, des recherches menées au Mohawk College de Hamilton (Ontario) utilisent la cartographie 3D et des drones pour créer un accès virtuel à des endroits fermés à cause de la COVID-19. Dans plusieurs collèges, les événements visant à mettre en valeur la recherche appliquée sont passés en mode virtuel cette année pour que les étudiants aient la chance de présenter le fruit de leur travail.

En fait, dans la plupart des collèges en ce moment, l'enseignement en ligne est la nouvelle norme, une transition qui, dans bien des cas, s'est faite en quelques jours. Le College of the North Atlantic (Terre-Neuve-et-Labrador), par exemple, a mis en œuvre un plan pour faire passer 181 de ses 205 programmes à l'enseignement en ligne en quatre jours seulement.

Le British Columbia Institute of Technology (BCIT), quant à lui, a créé un programme accéléré pour préparer les infirmières et autres travailleurs de première ligne en santé à soigner des patients gravement malades ou branchés à un respirateur. Près de 4000 travailleurs de la santé se sont inscrits à ce programme depuis sa création.

Même les cours qui ont une composante pratique ont été adaptés avec succès à l'enseignement en ligne. Au Camosun College de Victoria (Colombie-Britannique), les étudiants en mécanique automobile ont pu utiliser un logiciel de simulation hautement spécialisé pour s'exercer à exécuter des diagnostics, réparer des câbles, remplacer des pièces, etc.

Les étudiants du programme d'art culinaire de Saskatchewan Polytechnic, quant à eux, ont reçu des ingrédients dans le respect de la distanciation sociale, ont travaillé avec leurs professeurs en ligne et ont cuisiné à la maison les plats demandés. Leur évaluation était basée sur des photos du produit fini.

Les collèges et instituts ont aussi à cœur d'aider la communauté.

Le Canadore College de North Bay (Ontario) offre gratuitement au grand public six cours d'ordre général allant de l'astronomie aux cultures du monde en passant par le cinéma et la dimension scientifique de la vie quotidienne pour remercier les personnes en auto-isolément et leur offrir une façon productive de s'occuper.

Ouverts pour vous servir :

les collèges s'adaptent à la pandémie

La pandémie de COVID-19 a créé des circonstances sans précédent pour les collèges et instituts du Canada, qui ont dû modifier leurs méthodes d'enseignement, la façon dont ils hébergent les étudiants et même leurs services d'aide.

A New Brunswick Community College Information Technology: Programmer Analyst student is helping local business by assembling a data base of sensory-friendly Corona virus shopping accommodations, products and services.

Another example is Centennial College's continued ACCEL (Accelerator for Centennial College Community Entrepreneurs) program for small businesses, offering online workshops and coaching to help aspiring business owners develop or evaluate a successful business idea.

Not all support services are academic when it comes to a college education during a pandemic. Finance, housing and mental health are all important factors to college students.

Bursaries, emergency relief funding and zero percent tuition increases have been established at many colleges and institutes across Canada. In fact, Douglas College is aiming for an emergency fund of \$1 million to provide aid to its students.

At Red River College the Indigenous Student Supports department quickly organized deliveries of computers and emergency food hampers, and are also preparing traditional medicines such as sage and cedar for students to be able to smudge at home.

As campuses were closed students in residence, especially international students, became concerned about where they would live. Many colleges have made exceptions for international students, or have assisted them to attain housing off-campus. Loyalist College in Belleville, Ontario, is moving nearly 200 students into local hotels as well as providing funding for food and other necessities.

New processes relating to international students had to be developed such as priority study-permit processing, updates to eligibility for post-grad work permits and a temporary 2-stage approval process for those students who cannot submit all required documentation due to pandemic-related closures. Colleges continue to work with Immigration, Refugees and Citizenship Canada, as well as other federal departments and provincial governments to ensure the safe return of international students who left the country during the pandemic.

With increasing isolation and self-distancing, mental health concerns have come to the forefront. Many colleges are offering virtual tips, resources and workshops on dealing with stress and anxiety, as well as online one-to-one counselling.

Le Lethbridge College offre aux professeurs un cours en libre accès sur l'enseignement en ligne qui comprend des stratégies pour stimuler l'intérêt des étudiants.

Une étudiante du programme de TI/analyste-programmeur du New Brunswick Community College appuie le commerce local en constituant une base de données de commerces, produits et services liés à la pandémie qui sont adaptés aux besoins des personnes ayant des troubles sensoriels.

Mentionnons aussi l'accélérateur du Centennial College pour les entrepreneurs locaux (ACCEL). Ce programme pour les petites entreprises offre des ateliers en ligne et de l'accompagnement pour aider les futurs chefs d'entreprise à développer ou à évaluer une idée entrepreneuriale.

Les services d'aide des collèges en temps de pandémie ne sont pas tous d'ordre scolaire. Les finances, le logement et la santé mentale sont aussi des facteurs très importants pour les étudiants.

Beaucoup de collèges et instituts du Canada ont établi des bourses et des fonds d'aide d'urgence, et ont évité d'augmenter les droits de scolarité. Le Douglas College vise même l'établissement d'un fonds de 1 000 000 \$ pour venir en aide à ses étudiants.

Au Red River College, le service d'appui aux étudiants autochtones a rapidement organisé la livraison d'ordinateurs et de paniers de nourriture, et prépare aussi des remèdes traditionnels comme la sauge et le cèdre pour faciliter les cérémonies de purification à domicile des étudiants.

Vu la fermeture des campus, les étudiants en résidence, en particulier les étudiants étrangers, craignaient de ne plus avoir de logement. De nombreux collèges ont fait une exception pour les étudiants étrangers ou les ont aidés à se procurer un logement à l'extérieur du campus. Le Loyalist College de Belleville (Ontario) a installé près de 200 étudiants dans des hôtels locaux et leur a offert des fonds de subsistance.

Il a aussi fallu établir d'autres mesures pour les étudiants étrangers, comme le traitement prioritaire des permis d'études, la modification des critères d'admissibilité aux permis de travail postdiplôme et un processus temporaire d'approbation en deux étapes pour les étudiants incapables de fournir toute la documentation requise en raison des fermetures liées à la pandémie. Les collèges continuent par ailleurs de travailler avec Immigration, Réfugiés et Citoyenneté Canada et d'autres ministères fédéraux et gouvernements provinciaux pour permettre aux étudiants qui ont dû quitter le pays durant la pandémie de revenir en toute sécurité.



Photo
credit:
Keyano
College

At Humber College in Toronto, Ontario, PASS (Peer Assisted Study Sessions) connects students in high-risk courses to help maximize their understanding of a subject in a relaxed atmosphere. Okanagan College based in Kelowna, BC has an online resource for students with coping tips and links to various sites related to dealing with COVID, as well as study skills, anxiety, sleep, resilience and guided mindfulness apps and websites. And at BCIT the Mental Health at Home program addresses issues like adjusting to remote learning, finding credible sources for information on COVID-19 and also provides telephone and video counselling services.

Colleges are integral parts of the communities they serve therefore student and community supports continue to evolve as the COVID crisis changes.

In addition to supporting students with barriers to food security, many colleges are also contributing to local food banks and programs, like New Brunswick Community College's volunteers who provided food for seniors in need. They also donated all of their perishable products that were on hand when the shut-down occurred to a local food bank. Vancouver Community College opened up its kitchens in the downtown area to convert to a meal prep and distribution centre for those with barriers to food during COVID-19. As well, a student and an instructor at Nova Scotia Community College's Culinary Management course have taken it upon themselves to provide to-go meals for essential commercial truck drivers.

Just because campus access has been curtailed doesn't mean that learning has stopped. Northern Lakes College's Continuing Education and Corporate Training is offering free or discounted training to help serve its community. Helpful online alternatives such as Introduction to Zoom and Podcasting for Business provide timely, on-point instruction.

Graduating students were affected by the pandemic and many were unable to walk across the stage to accept their diploma, after all of their hard work. Portage College in Alberta hosted a virtual convocation. Graduates were sent care packages which included a cap and tassel, scroll and information on connecting virtually for the celebration. In a much similar fashion to in-person graduation ceremonies, there were faculty and student speeches, an awards ceremony and online meeting rooms for chatting with fellow students and instructors.

These are unprecedented times and it's not just education that colleges are focusing on right now. The COVID-19 pandemic has isolated faculty members, support staff and students. Uncertainty exists for the future but seeing how effectively and efficiently Canada's colleges and institutes have responded to the initial epidemic gives confidence in their ability to change and prosper. 📱

Compte tenu de l'isolement et de la distanciation physique, les préoccupations liées à la santé mentale se sont retrouvées à l'avant-plan. De nombreux collèges offrent des conseils, des ressources et des ateliers virtuels sur la gestion du stress et de l'anxiété ainsi que des services de counselling.

Les séances d'étude assistée par les pairs (PASS) du Humber College de Toronto (Ontario) mettent en contact des étudiants inscrits à des cours où le taux d'échec est élevé pour maximiser leur compréhension de la matière dans une atmosphère détendue. Le Okanagan College de Kelowna (Colombie-Britannique) a créé un site Web où les étudiants peuvent accéder à des conseils pratiques et des ressources en ligne sur la COVID-19, les techniques d'étude, l'anxiété, le sommeil, la résilience et les exercices de pleine conscience. Le programme de santé mentale à domicile du BCIT, quant à lui, aborde des choses comme l'adaptation à l'enseignement à distance et la recherche d'information fiable sur la COVID-19, et fournit des services de counselling par téléphone et par vidéo.

Comme les collèges jouent un rôle important au sein de leurs communautés respectives, les services de soutien qu'ils offrent aux étudiants et au public évoluent au rythme de la pandémie.

En plus d'aider les étudiants dont la sécurité alimentaire est compromise, de nombreux collèges contribuent aussi aux programmes et banques alimentaires locaux. Par exemple, des bénévoles du New Brunswick Community College ont offert de l'aide alimentaire à des aînés dans le besoin. Ils ont aussi fait don de toutes les denrées périssables qu'ils avaient en stock au moment du confinement à une banque alimentaire locale. Le Vancouver Community College a converti ses cuisines du centre-ville en centre de préparation et de distribution de repas pour les personnes dont la sécurité alimentaire a été compromise par la COVID-19. Une étudiante en gestion culinaire du Nova Scotia Community College et son professeur ont quant à eux entrepris de cuisiner des plats à emporter pour les camionneurs, des travailleurs essentiels.

Même si les campus sont fermés, l'apprentissage se poursuit. Le service de formation continue et de perfectionnement professionnel de Northern Lakes College offre des formations gratuites ou à prix réduit à la communauté. Ces formations, qui visent par exemple à apprendre à utiliser Zoom ou à créer des balados, sont une source opportune de contenu pertinent.

La pandémie a aussi affecté les finissants et finissantes qui n'ont pas pu monter sur scène pour recevoir leur diplôme en reconnaissance de leurs années d'effort. Le Portage College (Alberta) a tenu une collation des grades virtuelle. Chaque diplômé a reçu un colis réconfort qui comprenait un mortier, un parchemin et l'information pour se connecter à la célébration virtuelle. Tout comme dans une cérémonie en personne, cette célébration comprenait des discours d'étudiants et de professeurs, une remise de prix et des « salons » pour clavarder avec les autres étudiants et les professeurs.

En cette période sans précédent, les préoccupations des collèges vont au-delà de l'éducation. La pandémie de COVID-19 a isolé les professeurs, les membres du personnel de soutien et les étudiants. Personne ne sait ce que nous réserve l'avenir, mais compte tenu de l'efficacité avec laquelle les collèges et instituts ont réagi à la pandémie, on ne peut qu'avoir confiance en leur capacité de s'adapter et de prospérer. 📱

Northern Lakes College

● Recovering from the Pandemic

Northern Lakes College employs an innovative Supported Distance Learning (SDL) model, which includes unique delivery options like NLC LIVE Online™ and NLC Anytime, Anywhere. This model of delivery provides students with access to their courses at home, work, or on campus. The SDL delivery model positioned the College well to respond to COVID-19 challenges, requiring fewer course delivery adjustments.

As part of its continued response to the COVID-19 pandemic, NLC has relaunch guidelines in place to support a safe, gradual return to working and learning on campus this fall. All courses delivered through the SDL format will continue as scheduled, allowing many students to study from the comforts of home or work without the need to attend a campus. The NLC LIVE Online™ model recreates the traditional classroom in an online environment, allowing instructors to deliver live lessons and for students to ask their questions in real time. NLC Anytime, Anywhere provides the ultimate in flexibility, allowing students to study at a time and location convenient to them. NLC also offers online access to learning supports and a host of mental health and wellness services for students.

For the fall 2020 term, only current students who require access to computers or broadband will be on campus. For those programs with onsite and lab program components, engineering controls, physical distancing measures, and appropriate personal protective equipment will be utilized as necessary.

Northern Lakes College is committed to providing students with a quality educational experience while adhering to public health guidelines and implementing COVID-19 protocols to ensure the safety of the College community. The College guidelines may change based on the evolving pandemic situation and updated guidance by the NLC Senior Leadership Team, the Government of Alberta, and health authorities.

We're unique.

Supported Distance Learning (SDL) at Northern Lakes College
 means less interruption and fewer adjustments to your program during COVID-19.
Providing continued supports for students.
 During a time of increased stress and anxiety, NLC's SDL model also provides greater access to learning supports and a host of mental health and wellness services for students.

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The Michener Institute of Education at UHN

- **More than a school, Michener supports the healthcare system in troubled times**

In a normal year in March, students graduating from The Michener Institute of Education at UHN's Respiratory Therapy (RT) program would be wrapping up their clinical placement and preparing for exams. But 2020 has been anything but normal.

In late March 2020, five weeks before the end of their clinical placement, RT students in their final year were accelerated to complete the program and get certified so they could enter the workforce immediately to care for patients with COVID-19.

A day after learning that she had graduated early, Michener grad Jaspreet Singh got a call from Toronto Western Hospital asking when she could start in the Intensive Care Unit. Hospitals needed RTs as quickly as possible to stay ahead of the COVID-19 surge, and new grads were already familiar with hospital policies and had completed most of their clinical rotations. Their skills and knowledge were as current as possible.

"It was exciting, but also surreal," says Jaspreet. "We went from ending clinical early to becoming a frontline worker within days."

Once Jaspreet started in the ICU, she worked alongside an experienced RT who showed her proper donning and doffing of personal protective equipment and other ways to protect herself and other patients. By the second day, Jaspreet was working independently, taking care of up to eight patients on her own.

Prior to the pandemic, Michener's full-time programs were a balance of in-class and lab teaching supported by a web platform for hosting essential course resources and enabling communication and collaboration between students and instructors. Changing and delivering curriculum in a new environment required considerable work, including determining how to change hands-on lab components to remote delivery, particularly for methodology and patient care courses that often depend on simulation. Each of

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**The Michener Institute of
Education at UHN** – the only
school in Canada exclusively
focused on health care programs.



M I C H E N E R . C A

Michener's 10 full-time programs also needed support for web conferencing, content delivery and online assessment. Consideration for how to deliver exams in a new virtual format while also ensuring academic integrity and supporting students was also a priority.

Michener's faculty and its education support staff were able to address these challenges within a month and enable all students to complete their winter semester, while also designing a summer simulation semester that could be delivered almost exclusively online using microphones and webcams to practice interactions with patient actors and use interactive technology.

"The speed with which faculty and staff mobilized behind keeping students on track to graduate and enter the workforce still astonishes me," says Dr. Brian Hodges, Executive VP of Education at The Michener Institute of Education at UHN.

"When the province made the decision to close schools, our school took one day off to confer about how to transition to online, and then very quickly made it happen. Not only was there virtually no interruption to curriculum delivery, but those learners critical to the pandemic response were fast-tracked to graduation and certification and began working almost immediately."

Michener acted quickly to support Canada's healthcare system in other ways as well. Very early in the pandemic, the province asked Michener to develop a learning platform and materials to support healthcare providers who would be redeploying to care for COVID-19 patients. The school's continuing education team delivered this within 10 days - something that would normally take six months. Equally remarkable was how quickly the team adapted as the redeployment efforts shifted to long-term care. The platform - covidcarelearning.ca - continues to adapt almost daily, and has helped more than 8,000 healthcare professionals and members of Canada's military feel safe and prepared to work on the front lines of the pandemic.

As Ontario has entered Phase 3 of the pandemic, small numbers of students are returning to Michener's downtown Toronto campus for lab work, supported by physical distancing measures, new protocols and protective equipment. Lectures are being delivered online, and clinical placements in the province's hospitals and health facilities have resumed. Michener continues to deliver the most highly qualified healthcare professionals to the health system, even through a global health crisis.

"This couldn't have happened without our deep education design expertise, the passion and commitment of our faculty and staff, and our innate agility," says Dr. Hodges.

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Manitoba Institute of Trades & Technology

● Balancing safety, student success

Tech adaptations, strict adherence to public health orders guide college campus re-opening

The mid-March suspension of in-class learning at Manitoba K-12 schools prompted a swift response by Manitoba Institute of Trades and Technology (MITT). In a matter of days, all the college’s programs transitioned to remote delivery. In the weeks and months that followed, a campus re-integration plan, developed in lockstep with federal and provincial public health orders, was developed to strike a balance between campus safety and student success through blended delivery (in-class and online) of programs and student resources and a flexible matrix of campus activity levels.

Central to the plan, which was announced on May 29, 2020, was MITT’s purchase and college-wide implementation (slated for completion in fall 2020) of D2L’s Brightspace learning management system, which provides a single platform for continuous program delivery, assessment, as well as student-instructor interactivity during blended or fully online learning.

By early June, public health guidelines in Manitoba had eased enough that MITT could bring limited numbers of students and instructor back to campus for “intensives,” short-term in-class sessions to ensure they met graduation requirements and demonstrated skills required for various program-specific accreditations. While academic teams handled modified program delivery, the facilities team redefined MITT’s campus spaces with social distancing-specific wayfinding, revised class/lab capacities, while ensuring program-specific, as well as any new, PPE requirements were met.

At the same time that MITT modified how it could safely deliver learning to students on campus or online, similar adaptations took place within other key teams across the organization. Recruitment, domestic and international, student services, and career development services switched to virtual delivery of webinars and one-on-one consulting (via phone, email, and Zoom), while the Registrar’s Office created dedicated FAQs and updates on mitt.ca regarding program status and intakes, as well as other essentials of the application process.

MITT anticipates its blended delivery of in-class and online programs will ebb and flow according to public health orders. At the same time, the college continues adding tech adaptations to enhance the student experience, such as virtual delivery of MITT’s Intro to College and Work program (previously developed for incoming international students) to all students.



Help your students plan their career or education path at MITT.

Our programs are developed with industry and most have graduates career ready in a year.

Blended online and in-class delivery provides learners as much hands-on experience as is safely possible.

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Learn more
MITT.ca/start

Keyano College

What was once a quiet Campus is starting to buzz five months after the world came to a halt.

Under provincial government mandate, Keyano College, like all post-secondary institutions in Alberta, closed their doors in March and moved to online learning.

Students did not miss a beat in their studies thanks to the quick work of our IT staff transitioning the College to virtual studies in a matter of days.

While navigating through the pandemic, the College and our community faced another major challenge – a one-in-100-year flood forcing the evacuation of our staff and student housing, along with our main Clearwater Campus.

Facing \$48 million in flood damages and a pandemic, providing education to our students remained a priority.

The College's mental health coordinators connected with over 460 students to check on their well-being and informed them of supports that can be accessed virtually. We opened up different lines of communication for students and staff, increased bandwidth, ran training events for instructors, and invested in new technology.

Our faculty is now equipped with state of the art laptops to be more flexible in their teaching. The College is creating flipped classrooms – a studio that gives instructors the best tools and students more opportunities learning online. Virtual gathering spaces have also been launched as a safe space for students to connect meaningfully.

Due to the flood, the College only gained access to our facilities in late-August and had a couple weeks to implement the flood and COVID-19 transition plan before the start of the fall semester.

Health protocols have been developed and implemented at our campuses and student housing. Students continue to learn virtually this fall, except where labs and shops are required.

Our priority remains keeping students and staff healthy and safe.

“We want to assure our community that we commit to provide an exceptional experience for students, one that will prepare them for a career or for further education,” said VP of Academic, Fred Russell.

Keyano continues to move forward as an institution, grow and diversify our programming, and are prepared for the pandemic as the winter months approach.



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Did you know that 3D Printing technology has come so far that it can now design and create human tissue? That the use of nanotechnology is giving properties to clothing to make them feel warmer or cooler? Or that the concept of augmented reality has wide spread manufacturing potential?

These are all examples of advanced manufacturing technology which is dependent on the use of cutting edge materials and emerging capabilities as well as established principles in physical and biological sciences. Automation, computation, software, networking and sensing are combined to manufacture new products or increase usefulness and effectiveness of existing technology.

In Canada, over 77,300 companies are involved in the advanced manufacturing sector and according to the Government of Canada's Report from Canada's Economic Strategy Tables: Advanced Manufacturing; the industry is poised to bring in around \$1 trillion in sales by 2031, with over \$540 billion in exports. Projections for employment are also predicted to rise.

The report also outlined a number of barriers that may stand in the way of Canada's goals to increase advanced manufacturing sales and exports including increasing global competition, low availability of skilled and trained workers

Voilà autant d'exemples d'application des technologies de fabrication de pointe, qui reposent sur les matériaux de pointe, les capacités émergentes et les principes établis des sciences physiques et biologiques. L'intégration de l'automatisation, du calcul, des logiciels, des réseaux et des capteurs permet de fabriquer de nouveaux produits ou d'accroître l'utilité et l'efficacité des technologies existantes.

Au Canada, le secteur de la fabrication de pointe regroupe plus de 77 300 entreprises. Selon les projections présentées dans le Rapport des Tables de stratégies économiques du Canada : fabrication de pointe publié par le gouvernement du Canada, cette industrie devrait générer des ventes d'environ 1 billion de dollars d'ici 2031, dont plus de 540 milliards de dollars en exportations. Les projections annoncent également une hausse sur le plan de l'emploi.

Le même rapport fait état de certains obstacles à surmonter par le Canada pour atteindre ses objectifs de vente et d'exportations dans le secteur de la fabrication de pointe : l'ampleur croissante de la concurrence mondiale, la pénurie de travailleurs qualifiés et spécialisés et le niveau d'adoption variable des nouvelles technologies. Or, les collègues et les

ADVANCED MANUFACTURING – Overview

LA FABRICATION DE POINTE – Vue d'ensemble

By/Par Jackie Fritz

Saviez-vous que la technologie de l'impression 3D a tellement évolué qu'elle permet désormais de concevoir et de créer des tissus humains? Que l'utilisation des nanotechnologies dote les vêtements de propriétés qui les rendent plus chauds ou plus froids? Ou que le concept de réalité augmentée a beaucoup de potentiel pour le secteur de la fabrication?

and uneven adoption of emerging technology. Colleges and institutes have a unique relationship with leading industries, are able to adapt and grow along with changes in technology and are poised to demolish those barriers by supplying the workforce with qualified personnel.

Puneet Kaur Johal is currently enrolled in a Chemical Engineering Technology program. She says, "colleges focus on a variety of important things. They offer great hands on experience. They have latest instrumentation in labs that students would be using while working in industries. Students are encouraged to select and use current technologies in chemical engineering tasks and projects. Students are marked on the accuracy and precision of their results, so that gives students a sense of how important it is to get good results and perform experiments right by following the procedure, with correct techniques and in a limited amount of time, therefore, teaching them that time and accuracy is money for industries, and that companies would want to hire someone who has a sense of these things. They are trained to perform all work in compliance

instituts entretiennent une relation unique avec les grandes industries. Ils sont capables de s'adapter aux changements technologiques et de s'en servir pour progresser, et ils sont bien positionnés pour abattre les obstacles et enrichir la main-d'œuvre par l'apport d'un personnel qualifié.

Puneet Kaur Johal, actuellement inscrite à un programme de technologie du génie chimique, brosse le tableau suivant : « Les collèges se concentrent sur plusieurs aspects essentiels. Ils offrent une excellente expérience pratique. Leurs laboratoires sont dotés des mêmes instruments de pointe que les étudiants utiliseront quand ils travailleront dans une industrie. Les étudiants sont encouragés à choisir et à utiliser des technologies nouvelles dans leurs travaux et leurs projets de génie chimique. Comme l'évaluation de leurs travaux tient compte de l'exactitude et de la précision de leurs résultats, ils ont conscience de l'importance d'obtenir de bons résultats et de bien réaliser les expériences dans un délai restreint, en suivant le protocole et en adoptant les bonnes techniques. Ils apprennent donc que pour l'industrie, le temps et la précision, c'est de l'argent, et que les entreprises voudront embaucher des personnes qui sont conscientes de ces aspects-là. Les étudiants sont formés à exécuter tous

“Advanced Manufacturing; the industry is poised to bring in around **\$1 trillion** in sales by 2031, with **over \$540 billion** in exports.”

« Cette industrie devrait générer des ventes d'environ **1 billion** de dollars d'ici 2031, dont plus de **540 milliards** de dollars en exportations. »

with relevant regulations, standards and guidelines. Graduates are able to solve complex problems and perform tasks by applying principles of chemistry, mathematics, physics and chemical engineering.”

Educational facilities across Canada offer over 380 programs related to advanced manufacturing, consisting of diploma, certificate, degree, and post-graduate programs.

There are three main components of the advanced manufacturing sector including robotics and automation, transportation and engineering.

The field of robotics, or automation, is advancing at such a rapid pace and Canadian robotics technology is utilized all over the world... and beyond.

Andrew Van-Martin, Automation Specialist - BID Group of Companies says, “Some of the most recognizable parts on the Space Shuttle and International Space Station are the Canadarms 1 and 2. I love this particular example because as a kid I always thought it was so cool that Canada had built a part of something that was in space and seeing the videos of the arms in action always made me feel proud to be a Canadian. Our youth getting excited about science and robotics as a career when they are young means Canada will be able to continue being on the forefront of the mechatronics and robotics sector.”

Canada’s colleges and institutes are globally recognized for their advanced manufacturing educational courses.

Jagvir Singh Sandhu is an international student from Punjab, India. He is currently enrolled in an Aerospace Manufacturing

leurs travaux dans le respect des règlements, des normes et des directives en vigueur. Les diplômés sont en mesure d'appliquer les principes de la chimie, des mathématiques, de la physique et du génie chimique à l'exécution des tâches et à la résolution de problèmes complexes. »

Les établissements d'enseignement du pays offrent plus de 380 programmes liés à la fabrication de pointe, qui mènent à l'obtention d'un diplôme, d'un certificat, d'un grade ou d'un diplôme d'études supérieures.

Le secteur de la fabrication de pointe regroupe trois composantes principales : la robotique et l'automatisation, les transports et le génie.

Le domaine de la robotique (ou automatisation) progresse à un rythme effréné et la technologie robotique canadienne est utilisée partout dans le monde... et même au-delà.

« Les Canadarm 1 et 2 sont des composants particulièrement reconnaissables de la navette spatiale et de la Station spatiale internationale, observe Andrew Van-Martin, spécialiste de l'automatisation pour le BID Group. J'aime particulièrement cet exemple parce que quand j'étais enfant, je me disais toujours que c'était vraiment cool que le Canada ait construit une partie d'un vaisseau spatial. Voir des vidéos des bras en action m'a toujours rendu fier d'être Canadien. Grâce à l'enthousiasme de nos jeunes pour une carrière en sciences et en robotique, le Canada pourra demeurer à l'avant-garde du secteur de la mécatronique et de la robotique. »

Les collèges et instituts du Canada sont mondialement reconnus pour leurs cours de formation en fabrication de pointe.

Jagvir Singh Sandhu est un étudiant international venu de l'État du Pendjab, en Inde. Il est actuellement inscrit à un programme de techniques du génie de la fabrication aérospatiale. Il nous dit : « Je n'avais jamais été exposé à un programme propre à



Engineering Technician program. He says, “I never had a chance of being exposed to something which would enhance my practical knowledge, instead of just theoretical knowledge. I saw aerospace manufacturing technology, the new program that Centennial College provides to students. In addition to the thrill of being among the first students to graduate from a brand-new program, I also realized that it eventually comprises of all the fundamental courses that were present in other engineering fields. So, I said to myself, ‘Why not try this?’.”

“Aerospace manufacturing engineering technology contributes about \$20 billion annually to Canada’s gross domestic product (GDP). Aviation itself is separate and not a small contributor to Canada, whereas aerospace manufacturing comprises a more widespread employment sector providing 160,000 skilled jobs,” says Sandhu.

Engineering consists of six distinct branches – Mechanical, Chemical, Civil, Electrical, Management and Geotechnical, virtually all of which contribute to advanced technology.

Johal says, “Chemical engineering is something that combines science and economics; using principles of science to carry out processes that generate goods for our daily use which make our life way more comfortable and easier. Some of the recent areas that have highlighted the chemical engineering research are Earth-friendly plastics, cleaner energy fuels through non-conventional desulfurization of fuels and biofuels, medical microdevices, greener chemical processes and artificial photosynthesis which I find really interesting. Mainstream chemical production in industries uses thermal energy to bring about their processes. Innovative reaction technologies involve the active and advanced control of

enrichir mes connaissances pratiques plutôt que les simples connaissances théoriques. J’ai vu le nouveau programme en technologie de la fabrication aérospatiale que le Collège Centennial offre à ses étudiants. En plus d’avoir le plaisir d’être parmi les premiers étudiants diplômés d’un tout nouveau programme, je me suis rendu compte qu’il comprend finalement tous les cours de base offerts dans les autres domaines du génie. Alors je me suis dit : “Pourquoi ne pas essayer?” »

«La technologie du génie de la fabrication aérospatiale contribue à hauteur d’environ 20 milliards de dollars par an au produit intérieur brut du Canada, poursuit M. Sandhu. L’aviation elle-même est un secteur distinct et un acteur non négligeable au Canada, tandis que la fabrication aérospatiale constitue un secteur d’emploi plus vaste, qui représente 160 000 emplois spécialisés.»

Les six grands domaines du génie (mécanique, chimique, civil, électrique, organisationnel et géotechnique) contribuent pratiquement tous au développement des technologies de fabrication de pointe.

«Le génie chimique est un domaine qui marie la science et l’économie, ajoute Mme Johal; nous appliquons des principes scientifiques aux processus de production de biens d’usage courant qui nous rendent la vie plus agréable et plus facile. La recherche en génie chimique s’est signalée récemment dans des domaines tels que les plastiques écoresponsables, les carburants propres issus de la désulfuration non conventionnelle des carburants et des biocarburants, les microdispositifs médicaux, les procédés chimiques écologiques et la photosynthèse artificielle, qui m’intéresse tout particulièrement. La mise en œuvre des procédés conventionnels de la production chimique industrielle dépend de l’énergie thermique. Les technologies réactives innovantes mettent en jeu un contrôle actif et perfectionné des électrons et des ions, afin de faciliter la synthèse et la production de matériaux. Les systèmes qui en



electrons and ions to contribute to material synthesis and production. They have developed systems to speed up the process of making life-saving vaccines for new viruses.”

Jobs in the advanced manufacturing sector are many and varied and the outlook for careers in this area continues to grow along with the advancements in technology.

“The jobs that are in high demand are the ones from nuclear energy industry and petrochemical industry because nuclear energy is getting more popular than ever because it doesn’t cause air and water pollution like thermal energy (coal using) processes, and petrochemical industries as they are a lot in demand and also because they help manufacturing a large number of useful products like synthetic fibres, dyes, plastics, wax, crude oil, synthetic rubber, drugs, dyes, fertilisers, insecticides. Other than that, process engineer jobs are in high demand. Laboratory technologist jobs are popular amongst the co-op students of the program,” explains Johal

Sandhu’s list includes, “CNC operator/machinist, CMM operator, CAM and CAD designer, quality control, non-destructive testing and aircraft assembler,” he says.

And according to Van-Martin, “There are a ton of careers available in this field. There is the PLC (Programmable Logic Controller) side of things which is generally for production lines and big machines and stuff. Then there are embedded systems which are more for mobile applications. Someone in my program got hired at the TRIUMF particle accelerator at UBC and another got a job at BC Hydro working with motors and transformers. I would say that PLC jobs are currently in the highest demand. It is a different type of programming that people tend to not like as much so the supply of workers for these types of jobs is lower than other programming jobs. I think the career outlook in this field is extremely high and there are a lot of transferable skills if you end up deciding to pursue a career in a different field.”

Advanced manufacturing is an exciting and futuristic industry attracting keen minds and pioneering principles, and Canada’s colleges and institutes are at the forefront of this new technology, preparing the workforce of tomorrow, today. 🙌

sont issus accélèrent le processus de fabrication de vaccins d’importance vitale pour contrer les nouveaux virus.»

Les emplois dans le secteur de la fabrication de pointe sont nombreux et variés, et les perspectives de carrière dans ce domaine continuent de croître avec les progrès technologiques.

«L’industrie de l’énergie nucléaire et l’industrie pétrochimique sont des secteurs d’emploi à forte demande. L’industrie nucléaire est plus populaire que jamais parce qu’elle ne pollue pas l’air et l’eau comme les processus thermiques [qui consomment du charbon]. Quant à l’industrie pétrochimique, en plus de la forte demande, elle contribue à la fabrication d’un grand nombre de produits utiles : les fibres synthétiques, les teintures, les plastiques, la cire, le pétrole brut, le caoutchouc synthétique, les médicaments, les engrais, les insecticides. Par ailleurs, il y a une forte demande d’ingénieurs en procédés de fabrication, et les emplois de technologues de laboratoire sont populaires chez les étudiants stagiaires du programme», explique Mme Johal.

La liste de M. Sandhu comprend les emplois d’«opérateur-machiniste en CNC [commande numérique par ordinateur], opérateur de CMM [machine de mesure de coordonnées], concepteur de fabrication assistée par ordinateur, contrôleur de la qualité, spécialiste en tests non destructifs et assembleur d’avions».

Enfin, selon M. Van-Martin : «Il existe un tas de carrières possibles dans ce domaine. Il y a le côté API [automate programmable industriel], qui s’applique généralement aux chaînes de production et aux grosses machines. Il y a aussi les systèmes intégrés, qui servent plutôt aux applications mobiles. Une personne de mon programme a trouvé un emploi à l’accélérateur de particules TRIUMF de UBC et une autre a trouvé un emploi dans le secteur des moteurs et des transformateurs à BC Hydro. Je dirais que c’est dans le secteur des API que la demande est la plus forte. C’est un type de programmation différent, que les gens tendent à moins aimer, de sorte que l’offre de travailleurs pour les emplois de ce type est plus faible que pour les autres emplois en programmation. Je pense que les perspectives de carrière dans ce domaine sont très vastes et que bon nombre de compétences sont transférables si on décide finalement de faire carrière dans un autre domaine.»

La fabrication de pointe est une industrie stimulante et futuriste, qui attire les esprits aiguisés et les principes innovateurs. Les collèges et instituts canadiens sont à l’avant-garde de cette nouvelle technologie. Ils préparent aujourd’hui la main-d’œuvre de demain. 🙌

Canadore College

Skilled workers are in high demand locally, provincially and across Canada. Canadore College is on the cutting edge of innovation with its superior trades and technology programs and learning facility that has specialized labs fully equipped with industry standard training tools. Many of our highly qualified professors still work in their respective industries and are up-to-date with the current trends and continuously changing technology.

Students in our Mechanical Engineering Technician/Technologist program learn to design, develop and maintain machine components, tools, heating and ventilation systems, power generation and manufacturing plants and equipment, and much more. Mechanical engineering technicians and technologists are sought after in a vast number of industries including mining, manufacturing, and forestry.

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College



Lethbridge College

Be Ready to Build the Future

Students who have a knack for visualizing ideas and getting them down on paper – or on a screen – can create a blueprint for their future in the Engineering Design Technology program at Lethbridge College.

“Our Engineering Design Technology students get the benefit of working with 3D-design software every day in our state-of-the-art Trades, Technologies and Innovation Facility,” says Bill Smienk, chair of Lethbridge College’s School of Engineering Technologies. “In two years, they can start a rewarding career, building the future by developing engineering designs and drawings for architectural projects such as commercial and residential buildings. “

Smienk adds that many successful graduates work for engineering and architectural offices as well as construction and manufacturing firms incorporating mechanical designs. The average annual salary of an engineering design technologist is \$72,157, according to Alis Alberta. “There are so many meaningful professional opportunities available to grads of our programs,” he notes.

The work of design technologists is essential to all aspects of engineering and construction – and the college’s Engineering Design Technology program provides students with both the theory and experience they need to succeed on the job. Students are immersed in developing a comprehensive understanding of design fundamentals, learning how to design drawings, plans and diagrams while using 3D computer-assisted drafting technology and 3D printing to help bring ideas to life.

Lethbridge College has offered engineering technology education since 1964, and from the start, students have benefitted from opportunities to engage in real-world work experiences. For example, this past academic year, Engineering Design Technology students took part in a unique collaboration with the City of Lethbridge.

The city approached the college to see if Engineering Design Technology students could create new designs for the flagpole display outside of City Hall to allow the city to permanently fly the Blackfoot Confederacy flag, the Reconciliation Lethbridge flag, as well as having dedicated poles to fly flags celebrating other important community events and partners. Students submitted their designs for the revamped flagpole display in the fall, and in February, the city recognized two submissions. The winning student design will be considered in the final proposals for the permanent flagpole structure, which is targeted for completion before September 2020.

In addition to offering students real-world learning experiences, Lethbridge College’s Engineering Design Technology program is also nationally accredited by Technology Accreditation Canada. This endorsement assures students and their employers that the college is meeting the educational standards of Canada’s engineering technology and applied science profession.



To learn more, visit lethbridgecollege.ca

A male technician with a beard and safety glasses, wearing a red lab coat, is focused on working on a metal part inside a machine. The machine has a control panel with a digital display and several buttons. The background is slightly blurred, showing industrial equipment.

INNOVATIVE MANUFACTURING TECHNOLOGY DIPLOMA

Apply now for Fall 2020.

Saskatchewan's manufacturing sector continues to grow and need skilled workers. With the Innovative Manufacturing diploma, you will be prepared to help meet these needs. The program offers a wide range of skill-based training in all aspects of the manufacturing industry, including design, CAD drafting, Computer Numerical Control (CNC) machining, welding, fabrication, robotics, 3-D printing and project management.

Learn more at saskpolytech.ca/MEM

The logo for Saskatchewan Polytechnic, featuring a stylized white and purple geometric shape that resembles a ribbon or a banner, with the text 'SASKATCHEWAN POLYTECHNIC' in white capital letters on a dark purple background.

**SASKATCHEWAN
POLYTECHNIC**

Saskatchewan Polytechnic

Innovative Manufacturing Centre (IMC): Saskatoon RAMP facility

School of Mining, Energy & Manufacturing

When Environmental Instruments Canada faced the multiple challenges involved in fast-tracking the production of a new device, while walking the tightrope of cost effectiveness and time-saving, the company turned to Saskatchewan Polytechnic's Innovative Manufacturing Centre (IMC) in Saskatoon. The centre focuses on research, additive manufacturing and prototyping, also known as RAMP.

The Saskatoon RAMP facility is the most advanced additive manufacturing (3D printer) facility in Saskatchewan, with the capacity to print in almost a dozen different materials; it contains the only metal 3D printer in the province, as well as a waterjet cutter and a portable 3D scanner.

Since its opening two years ago, the RAMP facility has undertaken several industry research projects, one of them with Environmental Instruments Canada. The company produces radiation measurement devices for the uranium industry. However, its latest product was developed for homeland security markets, and needed to be rushed to production.

The hand-held instrument had to withstand a drop test, which typically requires the production of an over-molded rubberized coating over top of a hard plastic shell. The process of making the device's shell typically involves creating two halves of the part, plus over-molds on each half, requiring the use of four separate injection molds. At \$10,000 per mold, an error or redesign could cost \$40,000, and take additional months of valuable development time. With the help of Sask Polytech Saskatoon's RAMP facility, the shell and over-mold were 3D printed on a multi-material 3D printer using a single print. The process was so successful that Sask Polytech 3D printed the initial production run of the new instrument. Additional research is now being done to improve the durability and ergonomics of the instrument using the power and design freedom of 3D printing.

Manufacturers' prototyping and research projects are the collaborative focus of the Saskatoon IMC, one of two in Sask Polytech, the other of which is in Regina. By accessing the IMCs, manufacturers are able to solve real world problems they can implement immediately. Applied research also allows Sask Polytech students to work with industry partners. In Saskatoon, the new Design and Manufacturing Engineering Technology program provides students with a combination of skills that allow employers to take advantage of new technologies related to Industry 4.0. The program combines traditional engineering design, with state-of-the-art software tools and equipment. Its specialty includes mechatronic systems that integrate electronics, sensors, motor drives, and mechanical systems. The program, and its integration with applied research at the RAMP facility, ensures students have the skills to continue solving manufacturers' challenges.



To learn more, visit saskpolytech.ca

THE WORLD NEEDS YOU.

RISE ABOVE THE ORDINARY

SEE BEYOND TODAY.

The world needs the brilliant minds of our graduates.

Seeing beyond today, means we are committed to providing our students with learning opportunities that reflect the needs of the industries that propel our region.

Discover St. Clair College:

- + Access to state-of-the-art facilities gives students hands-on training using some of the world's most sophisticated technology.
- + Dedicated Applied Research & Development team with a focus on Advanced Manufacturing.
- + Access to \$3 million in scholarships and bursaries.



FUTURE
LEADERS



ST. CLAIR
COLLEGE

St. Clair College

St. Clair College's robotics program trains students for high-demand jobs

Located in the hub of Windsor, Ontario's Advanced Manufacturing sector, St. Clair College knows that technology and innovation are the main drivers of today's businesses.

These skills are in high demand in the local economy and around the world as AI and Automation become critically important elements in the world of Advanced Manufacturing.

The Electromechanical Engineering Technician – Robotics program at St. Clair College is one of a kind. An amazing team of professors, fresh out of the industry, have a combined 60-plus-years-experience in the field of industrial automation.

Students in Robotics will learn valuable skills to work as designers and programmers in the automation and robotics fields.

St. Clair College has two robot labs: the newest robotic vision lab has eight ABB robots with integrated Cognex vision systems and the second lab is fully guarded and houses six ABB robots that are set up to meet industry standards, for a total of 14 ABB robots.

Students are taught applications such as robotic MIG welding and spot welding, with the use of in-house designed and 3D-printed end of arm tooling that resembles workplace tools used to accomplish these tasks.

In the new robotic vision lab, students are taught to use vision-guided robot programming, using industry-leading software and hardware. Instructors teach different lighting techniques, accompanied by different types of imaging filters to acquire the best possible image and results.

Most of the tooling used in the robotic vision lab has also been designed and 3D printed in-house with the use of the College's 3D printers. The college is continually adding to a library of video tutorials of different lab techniques taught throughout the program. By using these online video tutorials, students understand the content by visually learning, even outside of the classroom.

Upon graduation, these students will have industry-ready skills in industrial robot programming, PLC programming, machine vision, electrical design, welding, simulation, fluid power, mechanical design, and project management.

Our current challenges require us to think differently, to act differently and to move beyond what we know. The world needs tech minds that can see beyond today. Staying a step ahead requires a commitment to teach from a place of innovation and to provide learning that encourages and motivates creative thinking and solution-based applications to real work issues.

This is the essence of what St. Clair College offers in its Electromechanical Engineering program, training our future robotics technicians to rise above the ordinary.



To learn more, visit stclaircollege.ca

University of Fraser Valley

UFV's Digital Manufacturing diploma

Whether you are new to the manufacturing field or a seasoned hand who needs to upgrade your skills, UFV's Digital Manufacturing diploma equips you with the know-how to work in a high tech shop.

Explore the techniques needed to harness evolving technologies and create innovative products made of smart materials.

Increase your earning potential by adding this 1-year diploma to almost any degree or enter the high tech sector by starting your training with the Electronics Technician Common Core program.

Training will include

Using digital tools, equipment, materials, and methods, including 3D computer modelling and simulation in concert with computer numerical controlled machinery

Building and using digital manufacturing equipment

Developing and implementing new solutions to challenging problems, and — most importantly — learning how to teach yourself what you need to know now and in the future

Experienced professional engineers and technicians use a problem-based learning approach that will help you acquire the skills you need to adapt and evolve as future digital technologies emerge.

Upon completion, you will be safely and confidently able to use 3D printers, laser cutters, plasma cutters, computer numerically controlled lathes, and milling machines. You will even be able to use new digital machinery that you design and build for applications nobody has thought of yet.

Digital manufacturing grads have excellent employment prospects in a wide variety of enterprises including aerospace, mining, steelmaking, automotive, food processing, wood and paper products, and consumer goods.

This program is offered at UFV's high tech manufacturing labs in Chilliwack, British Columbia. Apply today and start in September or January.



To learn more, visit ufv.ca/digital-manufacturing

LEARN HOW TO CREATE,
PROBLEM-SOLVE, AND EVOLVE

Digital Manufacturing Diploma



Increase your earning potential by adding this one-year diploma to almost any degree or enter the high tech sector by starting your training with the Electronics Technician Common Core program.

- Acquire the problem-solving skills you need to future-proof your career.
- Learn how to build and operate digital hardware and create technical designs using 3D computer modelling software.
- Customize your education while getting hands-on experience by solving a design problem of your choosing using a variety of techniques that are applicable to any industry.

Apply today and start
in September or January.

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