Colleges, Institutes & Polytechnics: Applied Research for Economic and Social Development
INCREASING PRODUCTIVITY
THROUGH INCREMENTAL INNOVATION

Colleges, Institutes & Polytechnics:
Applied Research for Economic and Social Development

Canada’s productivity depends on our ability to develop and test new products, help businesses adopt innovative processes and adapt technologies to gain competitive advantages. Stimulating innovation in Canada’s small and medium-sized enterprise (SME) sector will do more than any other measure to improve productivity and create jobs. At least 70% of new jobs are created by SMEs.

Canada’s colleges, institutes and polytechnics are responsive to the industrial and technical drivers of the economy and are natural catalysts of incremental innovation. Colleges and institutes help SMEs develop and grow by focusing on improvements to existing technologies, processes, products and services to enhance competitiveness. These improvements are often delivered in small steps which, over time, add up to significant changes that maintain and expand market share.

The Government of Canada has made important investments in college applied research capacity. Through the College and Community Innovation (CCI) Program administered by the Natural Sciences and Engineering Research Council, 198 grants have been awarded since 2006. In 2011, the CCI Program expanded to support 30 Industrial Research Chairs at colleges and to foster college-university commercialization projects through the College-University Idea to Innovation Grants. The National Research Council of Canada’s Digital Technology Pilot Program, announced in 2011, will enable colleges to engage with SMEs to accelerate the adoption of information and communications technologies. Colleges are benefiting from research infrastructure support through the Canada Foundation for Innovation College-Industry Innovation Fund. Federal economic development agencies support college applied research through programs and initiatives that provide businesses with access to college research capacity. For example, Ontario colleges receive support from the Federal Economic Development Agency for Southern Ontario, which created the Applied Research Commercialization Initiative.

This third showcase of applied research projects demonstrates the extensive reach of colleges with industry and community partners in sectors that support economic and social development.

The first and second volumes are available at:
www.accc.ca/english/publications/brochures.htm
INCREASING PRODUCTIVITY
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Compost Deplasticizer

Composting is a popular waste management tool for communities. Plastics and other contaminants in compost prevent waste from decomposing properly and must be removed.

Yukon College is working with a local company, Boreal Compost Enterprises, on a system that removes a high percentage of plastic contaminants. This system has been tested in a southern city with great success.

The goal is to build a system that is affordable for smaller jurisdictions and technically simple to operate, requiring minimal training and maintenance.

“The Plastovac works better than any plastic separation machine I have seen or used in the market. Its simple design means it can cope with a heavy plastic loading in the compost without plugging, even under difficult operating conditions, unlike the machine I own, which is the North American market leader.”

— Dave Laing, Fisher Road Recycling

The Impact of the Fire Ant on the Ecosystem of Newfoundland and Labrador

The need for improved knowledge of Newfoundland’s insect biodiversity led the College of the North Atlantic to set up an applied entomology laboratory with the support of the Wildlife Division of the Department of the Environment and Conservation. Research focuses on the introduction and spread of the European Fire Ant. The island’s ecosystems are vulnerable to the introduction of invasive species that may cause the extinction of native insects. Maintaining the biodiversity on the island of Newfoundland is a priority of the provincial government. The project will study the origin of the fire ant on the island and the detrimental effects that it may have on native species.
Green Roof Technology

Northern Alberta Institute of Technology (NAIT) is researching green roofs in partnership with the Enjoy Centre, a greenhouse, restaurant, spa, event venue and shopping centre. Four roofing evaluation models (REMs) have been placed on the Enjoy Centre’s roof, giving NAIT researchers space to test plants in northern Alberta’s challenging climate. Data modules on the roof gather information about the environment and are transmitted off-site to NAIT researchers. Other sensors will pick up the effects the REMs have on water retention and on the Enjoy Centre’s temperature. The potential for energy savings will be part of the study, helping construction professionals and property owners understand the value of green roof technologies. The goal of this leading-edge project is to enable more Alberta businesses to install hardy, low-maintenance green roofs.

“NAIT’s green roof technology study is a good thing for the Enjoy Centre to showcase because ecology is a big part of the Centre. NAIT is going to get solid data that will show people in the construction business that green roofs are worth checking out, and how they can work in this part of the world.”

– Jim Hole, Co-owner, Enjoy Centre

Syncrude Wildlife Survey Project

Keyano College Environmental Technology students and faculty have worked with Syncrude Canada to quantify the abundance of large mammals within the Syncrude southwest sand storage study area of northeastern Alberta using abundance indices including track and scat density data. The study area includes a holding pond. The project is examining how large mammal species use the study area and documenting how the animals are distributed. The effect of vegetative cover on wildlife density is also being studied. Students benefit by applying theory to practice and developing critical thinking, analytical and problem solving skills.
Impact of Climate Change on Coastal Erosion

Nova Scotia Community College (NSCC) in partnership with Nova Scotia Environment is using laser scanning technology in innovative ways to survey the ongoing impacts of storm surges and climate change on Nova Scotia’s coastline. This technology delivers information that aerial photographs cannot provide, resulting in more accurate predictions of how much erosion a storm will cause. By capturing information on the water levels of the ocean, data from weather stations (which collect the information on wind, rain, soil moisture and barometric pressure) and from time lapse photography, NSCC’s Applied Geomatics Research Group offers a complete picture of the effects of storm surges and weather events on shorelines. Surveys and scans document the vulnerability of the province’s coastline and define the changes needed to reduce damage. For example, installing armour along the shoreline can help limit storm erosion. The findings can be applied to the same shoreline types in other regions. Farmers, governments, land owners and many others whose livelihoods are connected to Nova Scotia’s expansive shoreline will benefit.

“The Applied Geomatics Research Group is providing extremely valuable insights into how Nova Scotia’s coastline is changing with its ground-based Lidar (light detection and ranging) technology. These technologies tell us a lot about individual storm surge events and how they affect coastal erosion, which is timely considering all of the coastal changes we are seeing across our province. Ultimately, the information will help us (planners and decision-makers) understand the vulnerability of our coast and the risk of erosion from sea level rise and storm surges under climate change.”

– Will Green, Adaptation Specialist, Climate Change Directorate, Nova Scotia Environment

Dental Vacuum System

R.E. Morrison Equipment was eager to break into international markets with its line of BaseVac dental vacuum systems that feature dry suction to reduce the consumption of water. A team of faculty and students at Sheridan College worked with the company to redesign existing systems to make them smaller and more efficient with improved functionality.

“Sheridan College helped us complete the development work we had neither the skills nor resources to do at a time when our recession-weary business needed it most.”

– Ray Ralph, President, R.E. Morrison Equipment
Amphibian Health and Ecology in the Oil Sands

Keyano College is working with Environment Canada, Parks Canada, the Alberta Conservation Association and the Canadian Wildlife Foundation to examine the oil sands resources and amphibian populations in the boreal forest in northeastern Alberta. Amphibians are key components of the boreal forest ecosystem, linking terrestrial and aquatic food webs by virtue of their lifecycles. They are important indicators of ecological health and change since they require healthy ecosystems that include breeding areas, foraging areas, and places for over-wintering. Researchers are testing for relationships between oil sands mining activities and indicators of amphibian health such as infectious disease dynamics, malformation rates, and biomarkers of chronic stress. This research will improve the thoroughness and efficiency of environmental performance monitoring and will facilitate reclamation and mine-closure planning by identifying potentially overlooked challenges to re-establishing self-sustaining populations of amphibians. Student research assistants are involved in all aspects of field work, diagnostic sample preparation, and husbandry of tadpoles in laboratory studies. This is an opportunity for students to develop scientific literacy and promote career goals. The research enhances the quality of information in the classroom by keeping faculty engaged in areas related to ecosystem health and environmental monitoring policy and law.

Biofiltration for Indoor Air Quality and Space Enhancement

Nedlaw Living Walls Inc., the top green wall provider in North America, improves indoor spaces by cleaning the air using beneficial microbes and plants, and produces high quality indoor air in an energy-efficient, effective and aesthetic manner. Since the cost of maintaining an adequate indoor environment is high, Nedlaw and Seneca College are working together to determine if biofiltration living walls are an effective alternative in the residential market. The system’s energy consumption will be quantified and the living wall design will be refined for broader range of applications. The potential for increased revenues and job creation is significant.
Screening of Native Plants for Green Roofs

Niagara College is partnering with St. Williams Nursery and Ecology Centre and DRAMM Canada for a multi-year study on the feasibility of using plant species native to Ontario for green roofs. Vegetated structural rooftops reduce carbon footprints and help with insulation and storm water management. Using Ontario-based plants will help local growers and greenhouses. Test varieties of plants are evaluated on criteria including drought tolerance, sun and wind exposure tolerance and maintenance needs. Students learn the characteristics of green roofs, including growing media with good drainage and aeration, water-holding capacity, nutrient-holding capacity, decomposition resistance, lightweight materials and stability. Student research assistants developed growing media by modifying a commercially available substrate with gravel, sand and organic matter. Students also tested different kinds of growing media for effectiveness. Student success culminated in 2011 at industry-related events including the Growers Short Course and most recently, the Canadian Greenhouse Conference where green roof research findings were presented.

“Bringing complex suites of native plants to the urban envelope via green roofs will provide meaningful ecological function and diversity of life to people. We are extremely pleased that Niagara College is researching these wonderful new systems that will impact development projects for the foreseeable future.”

– Mary Gartshore, Ecologist, St. Williams Nursery and Ecology Centre
Production and Conjugation of Nanoparticles in Specific Antibodies

Through an agreement with Ab Biotech, La Cité collégiale used 5-L biofermentors to optimize the production of antibodies specific to the sexing of animals (porcine, bovine and equine). The result was much faster production, improved quality and the purification methods and conditions increased the number of antibodies generated.

In the second phase of the partnership, the team at La Cité both synthesized and optimized the production of polymer-coated magnetic nanoparticles. When conjugated (linked) with the antibodies, the nanoparticles allow male spermatozoa to be separated from female ones. This in turn enables semen to be enriched with one of the sexes, which means breeders can select the sex of the animal to be conceived during artificial insemination. The enriched semen can contain more than 95% male or female sperm.

Thanks to the partnership between La Cité collégiale and Ab Biotech, two graduating students were hired full-time by the company.

“Partnering with La Cité collégiale is an asset in an innovation project. The team has the skills and know-how to solve problems that would otherwise require a hefty investment small- to medium-size businesses can’t afford. The advantage is lower innovation risks and speedier processes. We get into the market faster, and that’s important.”

– Robert Letellier, President, Ab Biotech Inc.

Nutrition for Cancer-survivor Health

BRUNCH, Building Recipes and Understanding Nutrition for Cancer-survivor Health, is an initiative of the University Health Network’s Electronic Living Lab for Interdisciplinary Cancer Survivorship Research in collaboration with George Brown College. Culinary Management-Nutrition students contributed their passion for food to BRUNCH, designing and testing recipes for survivors of colon cancer.

George Brown brought the positive eating experience to the initiative by incorporating healthy ingredients such as tofu and fish into a recipe. Cancer survivors attended cooking demonstrations and tested the recipes at home.

“Participants enjoyed the flavour of the food and 88% said that they were likely to include these recipes in their diet.”

– Electronic Living Lab for Interdisciplinary Cancer Survivorship Research Team
Mobile Technology to Facilitate Health Care Delivery in Remote Areas

The Mohawk eHealth Development and Innovation Centre (MEDIC) has recently partnered with NetHope to develop design specifications for the Collaborative Health Platform (CHP). CHP is a partner-driven initiative to develop a cohesive mHealth and eHealth ecosystem that facilitates the delivery of healthcare in resource-constrained environments.

The availability of mobile handsets and rapidly maturing network capabilities in developing countries has given rise to a number of mobile healthcare solutions that meet development objectives. The emergence of these solutions has in turn created the need for healthcare inter-operability through a standards-based approach. For example, if a pregnant woman from a rural village is referred to a local clinic, clinicians can retrieve her patient data using a flip phone, without the need for a paper record transfer. Healthcare interoperability between project teams in different areas can also facilitate cohesive reporting across projects, which can enable efficient data collection and supply tracking.

A MEDIC staff and student team completed an analysis of interfaces for open-source platforms and software design specifications for communities of developers, including NetHope. Students gained an understanding of open source platforms and healthcare interoperability standards, skills that can lead to future employment in the healthcare IT sector.

Pink Dentures with Green Technology

This George Brown College project is making dental technology affordable and available to the developing world and reducing first-world dentistry’s impact on the environment. A manual solar oven uses the sun’s heat and light to process the heat-polymerized acrylic resins used in dentistry and recycle the non-biodegradable pink modeling wax used in laboratories for fabricating dentures.

The manual solar oven was first tested successfully in Mumbai, India, and George Brown became a partner to determine if the technology could work in Canada. Not only did the solar oven successfully polymerize acrylic resin, it also worked to recycle modeling wax, thereby reducing the non-biodegradable waste produced by George Brown’s dental lab. The solar oven can now be used in clinical settings to recycle waxes that have been used with patients. The intent is to use the sun’s UVB and UVC rays to disinfect or sterilize materials as well as incinerate bio-hazard materials at source rather than store and transport them to incineration sites. Students in the Mechanical Engineering department will design and build a mechanized and automated solar oven-cum-acrylizer for possible clinical use.

If this solar-powered recycling system works, there is great commercial potential. Not only does recycling reduce the environmental impact, it also reduces the cost of the finished denture without compromising on quality. This way, clinics can save money and do well by the environment.
Leveraging Mobile Phones to Support Evidence-based Care

The Mohawk eHealth Development and Innovation Centre (MEDIC) has partnered with a Hamilton-based eHealth consulting company, ecGroup, to develop an innovative new eHealth/mHealth technology. The cloud-based service sits as a façade in front of an electronic health records system (EHRS) and translates inbound and outbound text messages into standards-based eHealth transactions (HL7v3). The application includes a graphical workflow designer which can be used to encode evidence-based care protocols. These workflows can then be followed by clinicians or patients using simple text message conversations.

This technology could have a huge impact on the developing world, where PCs are rare but the use of mobile phones is growing rapidly. In remote settings, such technology may be employed to help community-based workers, many of whom have little clinical training, follow the WHO/UNICEF care guidelines regarding maternal, newborn and child health.

ecGroup worked closely with Mohawk staff and co-op students to develop a working proof-of-concept interface that executes text message conversations with a pan-Canadian standards-based electronic health records system. Based on the success of the project and its demonstrable benefits in both developing and developed world settings, ecGroup has filed for provisional patent protection of this innovative new technology.

Wheelchair Anti-slouch Device

Nova Scotia Community College (NSCC) worked with Northwood, a Halifax continuing care facility. Northwood identified the need for a device that would prevent wheelchair occupants from slouching, which can cause discomfort for clients who are unable to reposition easily. Three second-year NSCC students brainstormed ideas, creating and testing their own prototypes, which developed into a cross-program group effort. Input from students in NSCC’s Occupational Therapy/Physical Therapy Assistant program assisted with the design to broaden the scope so the device would work for a range of clients including the elderly, children, heavy or disabled. Further collaboration between Business Administration and Mechanical Engineering Technology students resulted in the creation of a business plan and the device evolved to the point of commercialization. The student-designed anti-slouch device is expected to provide a more cost-effective, easier-to-use product than currently exists. Detailed design work is underway toward commercialization.

“We anticipate the product will make a real difference for our residents and our employees.”

– Gail Giffin, Senior Occupational Therapist, Northwood
Community Soccer Head Injury Prevention Program

While the effect of repeated concussions on elite athletes has been reported extensively in the media, a study by Red Deer College, in partnership with Alberta Health Services, is examining how to protect athletes in community sports programs from the potential devastation of multiple concussions. Research has examined the effects of concussions and their prevention in community sports leagues. Coaches who rely on visible symptoms or a player’s verbal assurances that he or she is okay to return to play might not have the tools or information needed to make an informed decision. Unlike many other injuries that can be sustained during sports, concussions require unique attention. An invisible injury is hard to detect. Visible signs like loss of consciousness, dizziness, memory loss, loss of balance are readily apparent but only a computerized behavioural assessment tool can detect silent symptoms. Testing athletes against the criteria enables detection of significant differences in impulse control and reaction time. These criteria are a warning against returning players to the field.

“We can remove the guesswork associated with establishing whether or not a player is ready to return to play. We’ve already quantified this person’s mental status before the injury and then we can see the progression following the injury.”

– Dr. Elena Antoniadis, Psychology Instructor, Red Deer College

Measuring the Impact of Licensed Practical Nurses’ (LPNs) Full Scope of Practice

Bow Valley College is working with the College of Licensed Practical Nurses of Alberta to provide objective, research-based evidence that focuses on LPNs in live settings, and evaluates their impact on the quality of patient care. The findings will inform decision makers in health, including managers and educators, and will improve the quality of patient care within the Alberta health system.

“Results of the study will add to the body of evidence that informs both policy and practice. We hope this study will broaden engagement of Licensed Practical Nurses in research, enhance understanding of the LPN and ultimately contribute to quality care for patients and clients.”

– Hugh Pedersen, President and Linda Stanger, Executive Director, the College of Licensed Practical Nurses of Alberta
Smoking Cessation iPhone Application

The Canadian Cancer Society and the Ontario Lung Association have collaborated with the Mohawk eHealth Development and Innovation Centre (MEDIC) to develop a smoking cessation iPhone application. The application was designed using a co-creation process involving industry partners and students from nursing, software development and graphics programs. The application transitions smokers through the various stages of quitting and provides them with education and support along the way.

Students benefited from the collaborative learning process in many ways. They learned that consumer-driven technology empowers patients to take control of their health, enables practitioners to deliver healthcare more efficiently, and that effective technological applications must be user-centric and grounded in evidence-based research. Students also experienced the value of interdisciplinary teams working together to solve complex health challenges.

A research study will be conducted evaluating how users interact with the applications to determine how mobile technology can be used as a tool for health promotion.

“Working collaboratively with interdisciplinary groups of students has added immense value to the design of this application.”

– Nancy Korstanje, Canadian Cancer Society

Nutrition and Culinary Students Turn Snack Bars Square

A nutritionist and snack entrepreneur, MaryAnn Scandiffio, approached the Culinary Studio of George Brown College to turn her recipes for healthy snack bars into two lines of tasty, shelf-stable, commercial products, the Digestive Square and the 3 pm Square.

Faculty and students from the Food and Nutrition Management program developed and tested recipes first in small, then in larger, commercial batches. The biggest challenge was to find a balance between the client’s specifications for taste and flavours and her nutritional targets. She is thrilled with the results of her collaboration with the Culinary Studio. “The snacks are amazing!”, she exclaims. “Even my teenagers love them.”

The bars are 25 gram squares, 100 calories, and extremely satisfying. Square Snacks are available at grocery and health food stores. They cater to consumers with specific digestive difficulties such as colitis and morning sickness, and offer a healthy and satisfying answer to that mid-afternoon craving.
Graphical User Interface Design for Operating Room Control Systems

OASYS Healthcare in Uxbridge, Ontario, provides innovative audio and video solutions for the medical marketplace, including operating room control, telemedicine, video conferencing, digital signage and patient monitoring systems. Among their offerings, OASYS has developed the V300 Operating Room (OR) Control System for the surgical environment. A usability study was conducted by researchers at Centennial College to test nurses’ acceptance of the user interface of the new system.

Fifteen perioperative Registered Nurses were recruited to participate in a routine operating room scenario using the V300 Operating Room Control System. The usability study was conducted with the Technology Acceptance Model to determine users’ perceptions of the design and functionality of the control system, to examine the impact of training on the nurses’ experiences and to explore nurses’ experiences of participating in a usability study. Surveys and observation were used to collect data, which was analyzed using statistical software.

The usability test validated three important findings. First, the Operating Room Control Systems added value to the surgical process. Second, the OASYS V300 OR Control System was easy to use and could be operated by a Circulating Nurse with little or no training, and third, continued improvement on the usability of the user interface would be beneficial.

OASYS Healthcare has embraced the study and is using it for the next stage of product development. This data will allow OASYS Healthcare to provide Operating Room Control Systems that increase efficiency, improve patient outcomes, and ultimately have a positive impact on patient safety.

Centennial College is growing this partnership through further projects.

“Our partnership with Centennial College has provided valuable feedback on our usability and design. By utilizing the results of this study, OASYS Healthcare will continue to deliver a user-friendly, positive experience to our clinical end-users. We look forward to future projects, as we collaboratively strive to educate the nursing profession and ultimately improve patient outcomes.”

– OASYS Healthcare
PharmaTrust™

PharmaTrust™ develops and manufactures remote healthcare products including its principle product, the PharmaTrust MedCentre, a pharmacist-controlled, interactive remote prescription-dispensing unit used in hospitals, pharmacies and medical clinics. The company worked with a team of faculty and students at Sheridan College to review MedCentre prototypes and report on usability issues, areas for improvement, and conceptual prototypes for the next generation user interfaces.

“The opportunity to work with the bright students in Sheridan’s applied research program was a natural fit for us. We firmly believe that industry has a vested interest in shaping the future workforce. By leveraging the fresh insight from a younger generation, like those at Sheridan College, PharmaTrust™ can continue to produce innovative technology, and maintain leadership in patient-focused healthcare.”

– David Gibbins, Executive Chairman, Patient Care Automation Services Inc.

Louisbourg Seafoods

Louisbourg Seafoods is a processor of shellfish and groundfish. Started in May 1984, Louisbourg Seafoods has become famous for producing a top quality snow crab and North Atlantic Cold Water Shrimp under the Mira brand. While the traditional species of snow crab, lobster, and groundfish are most important, Louisbourg Seafoods has based its future on diversification. The company sells over 20 species of seafood products caught in Atlantic Canada.

Louisbourg Seafoods is always looking for new and innovative ideas to develop and market its traditional and under-utilized species. The company turned to Canada’s Smartest Kitchen at the Culinary Institute of Canada at Holland College to develop product and marketing support services and materials. Louisbourg Seafoods was able to promote their award-winning, high quality seafood at various food shows all over the world by means of unique and innovative brochures and chef-tested recipes.

“Research chef Kimbal prepared the Mira Bay crab crepes for tasting. It was at this tasting that I realized the importance of the culinary component within our company. The Culinary Institute of Canada has become part of the Louisbourg Seafoods family. This business relationship is one of the best investments that our company has made.”

– Lori Kennedy, Co-Founder/Owner Louisbourg Seafoods
Wireless Technology to Stop the Spread of Superbugs

Using Real-Time Locating System (RTLS), Infonaut’s Hospital Watch Live (HWL) software will track infections as they travel between people and objects, allowing hospitals to react in real time to halt hospital-acquired infections before they spread.

Applying RTLS to infection control is a new use for the hardware. Infonaut turned to George Brown College. The IT student team and Infonaut set up the RTLS in the Simulated Practice Centre of the George Brown Nursing School to test the system in a hospital environment.

To ‘see’ the movement of infection requires a highly sensitive locating system that can follow nurses running down a hall or just moving between beds. Students engaged in the painstaking task of placing and positioning receivers to measure the accuracy of the signal and identify interferences.

George Brown continues to test new systems and hardware to enable Infonaut to offer an accurate, deployable solution.

“If the invention of the microscope allowed us to see microbes, our Hospital Watch Live (HWL) allows us to see how they move.”
– Colin Furness, Director of Research & Knowledge Development, Infonaut

A Training Machine that Makes Injured Workers Even Stronger

Workers who have suffered shoulder injuries can now rely on a new piece of equipment that not only gets them over their injury in record time, but also gives them even more physical capability than before they got hurt. The multifunctional training machine (MTM), as it is called, can also determine the maximum physical capacity of people who have been injured.

To develop the machine, the Centre de production automatisée (CPA), affiliated with Cégep de Jonquière, teamed up with Consultants en ergonomie et mieux-être (CME), a Saguenay-region firm specializing in rehabilitation and work re-integration.

“We’re truly able to bring accident victims’ physical capabilities to their highest possible level!”
– Martin Gravel, Consultants en ergonomie et mieux-être
Lean Healthy Snacks for Vending Machines

Lean Machine Inc. is a full service vending operation based in Atlantic Canada whose focus is to provide nutritional snacks and beverages that not only taste great, they also have to pass registered dietitian approval. When Lean Machine decided to develop a line of snacks that met the maximum nutrition criteria for sale in schools across Canada, the company knew they needed help from a skilled food product research and development lab.

In partnership with Lean Machine, Canada’s Smartest Kitchen at Holland College developed four new high quality snack foods that had healthy fibre, protein, fat, sodium and sugar – and taste delicious.

With assistance from Three Oaks Innovation, the Food Technology Centre, and packaging consultant Julius PatKai, Lean Machine and Canada’s Smartest Kitchen are scaling up the products, with commercialization soon to follow.

“From the very beginning, the relationship with Holland College’s Industry Liaison Office has been instrumental to the success of this entire venture. They partnered with us on the submission of a PEI Discovery and Development Fund proposal as well as providing invaluable expertise throughout the whole product development process on food science, licensing, suppliers and market testing. Their passion, knowledge and ability to respond quickly to our needs made this an entirely positive experience for our company.”

– April Glavine, CEO, Lean Machine
Virtual Concierge

Niagara College, in partnership with the Wine Council of Ontario, is developing an informative kiosk called Virtual Concierge for the College’s Wine Visitor + Education Centre. The kiosk features a touchscreen display with detailed information about Niagara’s world-renowned wine industry, giving visitors an opportunity to learn about their favourite varieties of reds and whites. Every aspect of viticulture is covered, including categories on soil types, grape varieties, barreling, and even glassware, giving visitors the chance to be an instant wine connoisseur. Programming for the Virtual Concierge was done by a Niagara student research assistant who worked from start to finish on the necessary coding to bring Virtual Concierge to fruition as an informative tool. The skills the student learned while working with Niagara College’s Research and Innovation department led to employment with Niagara Falls Tourism, where he provides web, graphic and IT support. The project was also beneficial to the Wine Council of Ontario, an organization that is always looking for innovative new ways to market Niagara’s wine tourism industry.

“The Wine Council of Ontario was pleased to partner with Niagara College to build on the assets of its Wine Discovery and Education Centre to support the broader goals of tourism and Wine Country Ontario. The development of the Virtual Wine Experience and Vineyard Tour App will be important tools for the consumer and the industry, broadly speaking, and we are very excited to have been part of their development.”

– Hillary Dawson, President, Wine Council of Ontario

Learning English Easier with Mobile Technology

English-as-a-second-language students are faced with little time to practice their oral communication skills in addition to attending classes, studying, and keeping up with the reading.

An interdisciplinary team of students from the School of Design and the School of Computer Technology at George Brown College developed software for Mobile-Assisted Language Learning (MALL) applications that can be used for Blackberry, iPhone and iPod, and eventually other mobile platforms.

“MALL takes language learning out of the classroom and into the real world. Students can access podcasts, engage in scavenger hunts and phone blogging, and participate in collaborative tasks—all through their mobile devices and on their own time. As one language learner reports, MALL ‘helps you practice how to understand other people, not only at school.’ For students looking ahead to work placements and job searches, this is practice that matters.”

– Aga Palalas, Principal Investigator, International & Immigrant Education
XB – Point Stream – Enhanced 3D Images for Web Design

Arius 3D, a Mississauga-based company that scans and delivers high quality 3D images to museums and other institutions partnered with Seneca College to simplify the delivery of 3D images on a web page.

Certain 3D devices such as 3D Scanners or LIDAR sensors deliver their 3D data as point clouds (coloured points at specific positions in 3D spaces) but the ability to render such point clouds in a web page has relied on plug-ins, limiting delivery to certain browsers and operating systems. Seneca College developed XB-Point Stream, a framework for rendering point clouds on any modem using WebGL. XB-Point Stream is highly customizable, can easily be used to support different types of data from various sources of point and can be viewed from multiple angles on a web page.

Arius is now using XB-Point Stream on their website to deliver their 3D images. Various other partners have also made use of it to deliver their work.

“As a technology driven company, the collaboration with Seneca has allowed Arius3D to achieve an important business goal - barrier free access to the world’s most accurate 3D color models! From a customer perspective, the benefit is access to our 3D images anytime, anywhere without a plug-in. From a business perspective, the benefit is the ability to showcase our images in their native and most accurate format (PSI). Of course, not having to produce secondary file formats is also a welcome benefit from both a time and cost perspective! Working with Seneca and their Open Source team gave us a head start with the emerging WebGL standard. We are now rolling out XP Pointstream to our customers and business partners around the world. If the future is about accessibility XP Pointstream is a step in the right direction.”

– Arius 3D

Fotobounce Viewer

Applied Recognition Inc. developed Fotobounce Viewer, a software program that organizes digital photos for both Windows and Mac systems. To remain competitive, the company needed a new version of its software to work on Apple’s iPad. Faculty and students at Sheridan College jumped at the chance to develop a mobile application in a business environment and created a prototype for the Fotobounce Viewer in a matter of four months. This new feature will give users the ability to map out family relationships with people that have been tagged in Fotobounce and give them a new way of browsing photos using a family tree graphic.

“Working with Sheridan gave my company a great opportunity to ‘think outside the box’ and look at our product from a new perspective.”

– Ray Ganong, President, Applied Recognition Inc.
Call Centre in a Box

The Citizen Society Research Lab (CSRL) is a full-service public opinion research enterprise that conducts public opinion surveys of Lethbridge and area residents for use by Lethbridge College students and faculty, as well as selected community partners. When CSRL lost access to the commercial call centre it had been using, it partnered with Lethbridge College’s Open Source Learning Lab (OSLL) to develop the “Call Centre in a Box”, a full-feature call centre developed using open source software that can operate from any computer lab on campus and does not require telephone lines.

“The Open Source Learning Lab effectively establishes a call centre for our use, each and every semester, allowing the Citizen Society Research Lab to accomplish its goals of producing quality data while providing students with an industry-standard experiential learning opportunity on our campus. We couldn’t do what we do without OSLL support.”

– Dr. Faron Ellis, Citizen Society Research Lab

Animations to Support People with Spinal Cord Injury

Spinal Cord Injury University (SCI-U) worked with George Brown College to design video-animated e-learning modules targeted to people with spinal-cord injury and their caregivers.

The current practice is not efficient. People learn one-on-one with a therapist, but do not have the opportunity to learn in a self-directed way. The idea behind SCI-U was to harness the e-learning technology increasingly common in corporate environments and apply it to rehabilitation, creating multi-media interactive learning modules.

Four George Brown Students created companion animations for voice-over lessons on self-care.

SCI-U has launched the e-learning modules on spinalcordconnections.com and is beginning work on Phase 2 of the project.

“...animations are key to delivering information that is both “technical and sensitive” [for example] “self-care procedures for bowel and bladder care must be detailed, but they are sensitive to depict.”

– John Shepherd, Consultant, Spinal Cord Injury University
Interactive Videos that Save Lives

SOS First Aid and Safety Training, a company that offers first aid training to the general public and workplaces, needed a new tool for first aid instructors that would bridge the gap between learning in a classroom and applying knowledge in a real-life situation. Sheridan College’s Production House helped the company develop and produce five interactive training videos that cover different medical emergencies such as slips and falls, heart attacks, asthma, burns and other conditions. Students and graduates from Media Arts, Journalism-Broadcast, Animation and Music Theatre collaborated on the project.

"Working with Sheridan has been a wonderful experience. Sheridan students are injecting a fresh, modern approach to a traditional industry to deliver essential life-saving skills."

– Velma Ganassini, Program Coordinator, SOS First Aid and Safety Training

Web Made Movies – Popcorn

The Mozilla research team of faculty and students at Seneca College worked with programmers from Bocoup, an open web technology company, to develop the code for Popcorn.js. Popcorn.js utilizes the native HTMLMediaElement properties, methods and events, and normalizes them into an easy-to-learn application programming interface. Popcorn has dozens of plug-ins for common services and APIs, ranging from Twitter, to Maps, media events, and more. The most current development is ‘Popcorn maker’, a graphical user interface, with familiar timeline controls for non-programmers to create interactive media pages for the web. Popcorn is now being used all over the world and graduating students who worked on this project are in demand in the job market.

“The goal of Popcorn is simply to make video work more like the web. We create tools and programs to help developers and authors create interactive pages that supplement video and audio with rich web content, allowing these creations to live and grow online.”

– Brett Gaylor, Popcorn Project Lead, Mozilla
Triple-i Tracking Technologies

The three ‘i’s in Triple-i Tracking Technologies Inc. stand for investigate, implement, and innovate. Students from the Bachelor of Technology Program at the Northern Alberta Institute of Technology (NAIT) applied those principles while working on their Capstone Project – a senior-level applied research project for real-world clients.

Working in partnership with PCI, a group of independent construction companies, NAIT students developed a radio frequency identification and GPS solution to help the company locate equipment and supplies in the company’s yards, with substantive savings.

Today, Triple-i is a novaNAIT incubator client headed by one of the original students involved in the project. The company receives affordable office space and invaluable support from novaNAIT’s Entrepreneur in Residence and professionals from numerous areas within the NAIT community.

Triple-i was recently part of a boreal reclamation study with NAIT’s Boreal Research Institute, providing unique tags for over a thousand plants. This new technology will help researchers monitor and document progress with unparalleled accuracy and responsiveness.

The company continues to seek new applications and customers, with ongoing advice from NAIT.

“In NAIT’s Bachelor of Technology program, we learned about all aspects of business – from project management to human resources and risk management. NAIT prepared us with the skills and knowledge to set our own path in life.”

– Dean Vitisin, President and CEO, Triple-i Tracking Technologies Inc.

BerrySync - A Tool for Mobile Business Users

Student researchers from Seneca College worked with Toronto-based Bespoke I/O within an aggressive four month development schedule to plan, develop and test BerrySync, a Blackberry application that will provide mobile corporate users access to their bookmarks, desktop browser and web-based information. With management and support from Bespoke and building on Mozilla’s Sync services and other open-source technologies, BerrySync was shipped to the Blackberry App World store in September 2011.

“Bespoke I/O specializes in the customization, configuration and deployment of Mozilla’s Firefox web browser for large-scale professional environments, providing our customers with a stable, secure and standards-compliant platform for modern web development and a painless, low-cost migration path away from legacy intranet software.”

– Mike Hoye, Founder, Bespoke I/O
Red River College Mobile Application

Red River College’s (RRC) Business Information Technology (BIT) program is designed to give students “real-life” industry experience by working on information technology projects involving basic research and proof-of-concept applications.

One of these projects was the creation of a mobile application for the college. Currently without any mobile applications, RRC saw an opportunity to expand on its communications tools, while also involving its students.

Created over the fall 2011 semester, the RRC app is compatible with Apple devices – iPhones and iPads – and is designed to provide information on the school. The app includes several social networking features, such as a map that allows students to view and mark interesting places around RRC campuses, and Twitter integration that tracks what people are tweeting about the College.

Instructors and students in the Digital Media Design and Creative Communications programs assisted with design and copywriting, while RRC’s College Relations department and Student Association consulted with the students.

Improving Safety in the Trucking Industry

Safety is the driving issue in the trucking industry. The new US safety rule, CSA (Compliance, Safety, Accountability), is forcing carriers to be more proactive about managing safety, and this affects Canadian carriers as well. New trucks manufactured in the US are now required to include the software that tracks drivers’ compliance. However, while these systems collect the raw data necessary, there is currently no program on the market that makes the data easily intelligible to the owner of a trucking company.

Fleetmetrica, a trucking informatics company, recognized the new safety rules and the resulting data overload as a business opportunity and turned to George Brown College to develop it. Students from Information Technology and Design devised a custom number-crunching system that produces a statistical picture of a company’s compliance and infractions, and an interface that makes the information easy to access. This information dashboard will enable carriers to track and evaluate their fleet safety and improve their safety record easily.

Students from the School of Business helped with the marketing and design of the Fleetmetrica product. Fleetmetrica’s first workshop to introduce their product is already fully booked and five companies have asked to participate in the alpha and beta testing phase.

The next phase of development involves creating an online app that carriers can use to assess their suitability for the product.

“George Brown has been instrumental in getting the business off the ground.”

– Ward Warkentin, Fleetmetrica
Quality Assurance Check

Niagara College is partnering with Yangaroo Inc. to create a Quality Assurance Check for the company’s patented Digital Media Distribution System. Yangaroo hosts a business-to-business secure online video-file transfer system for its clients, including entertainment and media firms such as CBC Radio and MTV. Online transfer of media files for distribution is the new industry standard in broadcast and advertising, but data compression that occurs during file transfer can create incompatibilities that usually are not noticed until the files are already uploaded. Inserting a Quality Assurance Check at the client’s end alerts the person doing the uploading to any pending incompatibilities. The result is a more efficient workflow.

The project is led by faculty and student research assistants, both of whom are spearheading the development of the quality check, lending expertise in areas including video data compression, video analysis and program implementation. These skills are more and more relevant as digital file transfer becomes the new world standard for video broadcast. The project has allowed Yangaroo to include systematic updates in its software in the Quality Assurance Check. Both ease-of-use and efficiency for Yangaroo’s Digital Media Distribution System have improved as a result of the partnership with Niagara College.

“Integrating the work completed on this project will address the quality assurance issue and we’re having a lot of successes working with Niagara College. The flexibility of this collaboration will allow us to include iterative project releases in our DMDS Manager software in the very near future. Partnering with Niagara Research, from the admin team to the students, has been a great experience and we look forward with great expectations to the end result.”

– Richard Klosa, Chief Technology Officer, Yangaroo

Bitstrips for Facebook

Bitstrips is the biggest comic-making website in the world with over 25,000 logins every day. The current focus of Bitstrips is within elementary schools, where using comics as a teaching tool engages the digital-savvy youth of today and fosters media literacy and creativity in children. With the extraordinary impact that social media has had on communication over the past decade, the Bitstrips team has strategized to repurpose their technology for Facebook. This will enable millions world-wide to make, share and collaborate on comics and promote communication in a uniquely fun and personal way.

Centennial College students created a vast new library of interactive art items and templates, which is a key driver in the success of Bitstrips on Facebook.

“Working with Centennial has been great. The students were pros and made an integral contribution to this project. We look forward to teaming up with Centennial again soon.”

– Jacob Blackstock, CEO/Creative Director, Bitstrips
Remote Energy Control and Monitoring

A Sault College Information Technology graduate collaborated with professors and industry partner, DX2 Technologies Inc., in the development and testing of an Application Interface Layer (API) and various Application Layer Libraries, key components of their innovative energy management technology being developed to operate within the commercial and residential markets of Ontario’s Smart Grid.

The research team, in collaboration with a global hardware manufacturer of powerful, cost-effective components, was successful in developing and testing an alpha version of the required low level software components.

The research project brings DX2 Technologies Inc. one step closer to the commercialization of their proprietary system that will also feature the capacity for the rapid development of custom client applications.

As a result of the industry contacts that were established during the project, the student was offered employment with DX2 Technologies Inc. to continue development of their systems.

“It has become apparent that your school can provide the necessary environment to cultivate students/graduates and allow them to apply their learning in new, exciting technology areas such as renewable energies and advanced control systems.”

– Don Martone, DX2 Technologies Inc.

Downtown St. Catharines 3D Visualization

Niagara College is working with the City of St. Catharines on a long-term partnership that is resulting in thousands of brilliant 3D renderings of the community’s downtown. The initiative, which takes the sights and streetscapes of the city’s central district and transforms them into 3D scenes, is taking shape as more buildings and areas are created and updated by the project team. The objective is to create a scene encompassing the city’s diverse downtown. The 3D scene can then be viewed using a number of models, ranging from a game-like 3D interface to movie animations to still images. Each model represents a way of using the scene, each with its own application. Movie files are suited to presentations and websites, while the game-like interface allows architects and designers to view and show any sightline relevant to a current civic project. A New Media Web Design program graduate created beautiful 3D renderings that are among the best Niagara College has ever seen. The student now spearheads his efforts from Niagara College’s offices at nGen, a unique digital media incubator located, fittingly enough, in downtown St. Catharines.

“What you’re getting is the potential to fly through the models that are detailed, the potential to view what you want, where you want to. There is a huge amount of potential here. You have a very detailed amount of control over the scene.”

– Dr. Michael Duncan, Chair of Visualization Sciences, Niagara College
House Automation System

A collaboration between George Brown College and Canadian Computer Technology (CCT), a company specializing in integrating open-source software, will soon make it possible for you to turn off the stove with your phone.

Faculty and students in the Computer Systems Technology program have designed, built and tested the prototype of a VoIP (Voice over Internet Protocol) house automation system. The system allows homeowners to check whether they left a light on, and then turn it off by using their mobile phones to access the system website. The VoIP-enabled home automation system not only addresses homeowners’ concern about energy savings but also works as a security system, connected to cameras inside the house.

The second phase of the research will focus on adding voice-recognition to the VoIP system. Homeowners will not have to press a button to check if they’ve left the stove on, but only utter the command for the system to check.

“This is the real innovation, the ability to communicate with the home automation system internally and externally through voice.”

– Sheref El Shabawy, CTD and Co-Founder of CCT

Land Use (Zoning) Creation

Centennial College and DMTI Spatial Inc. are collaborating to fulfill a gap in nationwide coverage of municipal zoning information sourced from municipalities that allows industry partners to make up-to-date decisions in solving business problems and performance. The research involved converting current Canadian zoning maps, official plans, and land use maps into a standardized GIS layer that was digitized to create individual land use values.

The project provided the students an opportunity to acquire skills in advanced computer technology, GIS applications and tools, research skills, project planning and data management, and data validation and standardization.
Viticulture Mobile iPhone Application

Niagara College, in partnership with the Wine Council of Ontario, is developing a downloadable software application for the iPhone titled, “Niagara College Teaching Winery Vineyard Tour”. The application is available via iTunes for iPhone users visiting Canada’s original Teaching Winery, giving users a 10-step tour of the unique learning facility. The app offers detailed information about the Teaching Winery, where students learn viticulture firsthand, from vineyard to barrel room. Also included is a history of the Wine Visitor + Education Centre, featuring a briefing on the royal visit by Prince Charles. The app features text, maps, photos and other information, and complements other informative displays at the venue, giving visitors a true top-to-bottom experience. The application, developed by a student researcher, provided the opportunity to create a cutting-edge technical product in a field that continues to trend upwards as users download more and more user-based applications. The student benefited from an end-result project that is already available for consumers.

“The Wine Council of Ontario was pleased to partner with Niagara College to build on the assets of its Wine Visitor + Education Centre to support the broader goals of tourism and Wine Country Ontario. The development of the Virtual Wine Experience and Vineyard Tour App will be important tools for the consumer and the industry broadly speaking and we are very excited to have been part of their development.”

– Hillary Dawson, President, Wine Council of Ontario

Marketing Automation and Business Intelligence Software Platform

Through the Privileged Play program of International Club Network (ICN), the largest alliance of independent private and daily fee clubs in the world, Privileged Play’s members can access a growing number of premier daily fee golf facilities and other leisure and travel opportunities throughout Canada, the U.S. and U.K. To improve ICN’s understanding of, and communications and relationship with, its customers, this company is seeking the expertise of Seneca College’s School of Information and Communications Technology for the development of a marketing automation and business intelligence software platform. This will enable ICN to develop effective marketing programs for prospects and to increase renewals of existing members.

“The opportunity to work with Seneca has allowed us to pursue the development of an enriched technology platform that would not have been possible with our available resources. With this collaboration, we anticipate realizing significant income, which will fuel growth not just in Canada but into the US and Europe as well.”

– International Club Network
Manufacturing

Sustainable Industrial Design for Furniture Manufacturing SMEs

Industrial design is a pivotal factor in making businesses more innovative. Professors and students in the industrial design program at the Cégep régional de Lanaudière, and renowned designer, Jean-Claude Poitras, partnered to establish a universal set of design features for manufacturing furniture products that meet international standards while complying with the principles of sustainable development. The research team aims to reduce environmental impact by at least 10 percent, to increase sales by 20 percent and to expand the market share of the companies involved. Everyone involved benefits: students and professors stay on top of what companies truly need, and in return, businesses get access to novel products, leading-edge technology and qualified workers.

“How delightful it is to work on a project that gives Quebec furniture its very own identity!”

– Jean-Claude Poitras, Nota Bene Design Inc.

Thermal Undergarment for Diving

Whites Diving required applied research expertise from Camosun College to test a high-performance diving undergarment that would maximize warmth and provide unrivaled flexibility.

The undergarment was rigorously tested against in-house and competitor garments. Cold water immersion and controlled environment testing determined effectiveness in protecting skin and core body temperatures. The test results were used to help inform the final design and then to ensure that the highest level of comfort and warmth were assured. Camosun College students were value-added participants in all phases of this project.
Garde Manger

Keeping food safe in a busy environment is the motivation behind a partnership with Niagara College and the Canadian Food and Wine Institute, the college’s school of culinary arts, viticulture and brewing. Together, they have developed a system to monitor temperature readings of refrigerators remotely for food safety and auditing purposes. The system, called Garde Manger, allows restaurant owners to view current temperatures as well as temperature history, broken down by each individual sensor. Setup and maintenance of the monitoring equipment was designed to be simple and cost-effective. Temperature sensors installed in restaurant refrigeration systems relay information via a web portal to the manager’s hardware station, where the temperature data can be quickly reviewed and organized. The hardware component was designed to be inexpensive and the web portal runs on Java software, which can be transferred to a number of devices. An alert system notifies the manager of problems. The pilot was so successful that the college was able to license Garde Manger to a national food service company. The project involved both computer programming and culinary students; the former learned skills about system installation and the latter gained food safety insights.

“Niagara Research was the facilitator for my invention to go from the drawing board to the reality stage. I was able to license my Garde Manger Temperature Monitoring System to a nationally recognized food service company and continue to work with them on marketing, sales and upgrades.”

– Michael Olson, Chef Professor, Canadian Food and Wine Institute

Surgical Power Lifter – A New Surgical Product

The Centre for Innovation in Manufacturing at Red Deer College (RDC) has ventured into the biomedical field with a recent prototype that will make the lives of surgical staff easier. The surgical irrigation power lifter (SIPL), raises 12 litres of surgical irrigation fluids to a height of 8 feet using an electronic linear actuator. Until now, the awkward raising of surgical fluids was done manually. The concept prototype, which was designed by the University of Alberta’s Faculty of Art and Design, was turned into a working product by RDC. The SIPL is currently undergoing CSA approval and has been showcased at several medical product conventions. This applied research was done in collaboration with the Biomedical Engineering Research and Results Initiatives (BERRI), a collaboration of research institutions, universities, colleges and health services in Alberta aimed at product development for medical technology.

“RDC got us, the manufacturer, involved right from the beginning and worked through a process called DFMA, design for manufacturability and assembly.”

– Dave Prefontaine, Alberta Custom Technologies
Blast Resistant Shelter Installation

Dynamic Air Shelters, a leader in the temporary shelter market, is changing the landscape for rapid response teams, industrial work sites and promotional events.

The company’s growth and industry-leading performance largely depends on the accurate installation of their shelters by their technicians and agents around the world. When the company decided to pursue establishing a certification program for the installation of Dynamic Air Shelters, it approached College of the North Atlantic to quantify the process of erecting their Blast Resistant Shelters.

The partnership has led to a comprehensive research project to develop an effective non-destructive method for testing of welded plastics. Such new quality assurance techniques and devices will have an impact on this company and others in the industry.

“We approached the college’s Office of Applied Research (OAR). They were eager to get involved and take on the project. They needed to understand the problem we needed to solve, and we needed to understand the college’s process for curriculum development. All of our expectations were met; we now have a documented certification process to follow and our clients have increased confidence in our shelters. We would most definitely partner with OAR again in the future.”

– Dynamic Air Shelters

Argonault Power Wheel Chair

Argonault, an emerging company that is bringing to market adaptable solutions for people with complex mobility requirements, is engineering a multifunctional Power Wheel Chair. Argonault’s project with the Centre for Advanced Technologies at Seneca College involves researching, proposing and engineering a tracking system to fit in and function with the Power Wheel Chair. The objective is to help Argonault get a few steps closer to commercializing this innovative product, which will not only benefit people with disabilities but also increase Argonault’s revenue and generate full-time jobs.

“Dealing with Seneca’s personnel, such as administration, academics and students, has been an enlightening experience for our company. This collaboration is helping us to find efficient ways to break into the market place and is greatly appreciated.”

– Argonault Corporation
Remote Mobile Communication Prototype

Red Deer College’s Centre for Innovation in Manufacturing has partnered with a small home-based telecommunications company to develop a new tool for remote mobile communication. MobileSat Communication of Red Deer, AB, had developed a concept design for a mobile satellite communication unit. The Centre provided guidance and product development support to turn the concept design into a functional prototype. The Centre also created a 3D CAD, and wrote a tool-passing program for a production run. The mobile unit will be able to provide a high-speed telecommunications connection nearly anywhere in the world. MobileSat hopes to provide telecommunication services for disaster response teams, isolated mining camps, forest fire staging areas and remote oilfield operations.

“Red Deer College created the CAD drawings and the tool passing program; they tracked down the high-density foam we needed and did all the machining. We ended up with a 3D model, all the parts, and a finished prototype.”

– Trevor Mulligan, MobileSat Communication

‘Pipe Wrap’ to Prevent Catastrophic Field Failures of Monolithic PVC Piping Systems

Jana Laboratories, a piping systems knowledge solutions firm, provides value-added solutions to the manufacturers and users of plastic piping systems. The company wields the largest Oxidation Resistance Test and Analysis capacity, and the most sophisticated engineering capability in the world. A collaborative project with the Centre for Advanced Technologies at Seneca College is initiating proof of concept of a new pipeline technology including design and construction of specialized test equipment for prototype development. The new technology will improve the performance of plastic piping materials in potable water applications. The total market potential is enormous with a projected growth rate of 25% per year.
Paper Void-Fill Machine Prototype

Durham College in partnership with ALX Technical Services, an Ontario-based company that identifies, develops and commercializes green technology solutions, is working with Paperchipz, a recyclable packaging system prototype designed to make natural paper chips for product packaging.

The project will allow for real-world piloting of this machine to demonstrate its many advantages over conventional expanded polystyrene (i.e. Styrofoam) ‘peanuts’ including: ability to produce the product on demand, reduce transportation costs of material, minimize storage space requirements, be produced with recycled paper materials and recycled again after use, and reduce costs.

The results of the project could lead to the creation of five new jobs at ALX Technical to launch the product in the marketplace, and another 40 jobs to support a global market.

“Paperchipz is a simple system for recyclable packaging that enables any size business – large or small – to make their own 100% natural paper chips for packaging their products quickly. It produces paper filler on site and whenever it’s needed. Durham College has been invaluable in helping us develop Paperchipz.”

– Ralph Cilevitz, Inventor, Paperchipz

Garage Door Hinge Prototype

The Centre for Innovation in Manufacturing at Red Deer College worked with Door Masters Inc. to design and develop a new type of garage-door hinge meant to stay sealed from the elements. A plastic prototype was produced at a fraction of the time and cost to the manufacturer that would have been required if a fully-functional prototype were produced. Door Masters Inc. was able to fulfill a client request that would have been prohibitively costly for the small manufacturer. Door Masters Inc. is now able to market the newly developed product.

“We were able to get a prototype produced locally and quickly, which enabled us to establish whether the product design would work. It saved us money but also a lot of time, which was much more valuable.”

– Dan Murdock, Door Masters Inc.
1/9th Scale Remote Piloted Prototype Vehicle

Quaternion Engineering Inc., a small but expanding Aerospace company located in Sidney B.C., is working with the US Air Force Research Laboratory to design and build the next generation of unmanned aircraft for intelligence, surveillance and reconnaissance. Vancouver Island’s Centre for Advanced Manufacturing and Prototyping (VICAMP) services at Camosun College was used to mill all the moulds on the 5 Axis CNC machine for a complete 1/9th scale remotely piloted prototype vehicle. This prototype will be used experimentally to investigate structural responses and to analyze flight characteristics of this unique aircraft. No other facility on Vancouver Island had a 5 axis machine capable of milling the size of parts required. Manufacturing parts on the mainland would have been expensive and inconvenient.

Building on the success of this project, Quaternion Engineering asked Camosun to help build a complete unmanned aerial vehicle (UAV) in order to meet a tight deadline for flight testing. All structural supports for the building of the UAV were cut with precision utilizing Camosun’s Flow Waterjet. In addition, Camosun used its 3-axis CNC technology to make one-off specialty pieces needed to complete the plane for flight. Lastly, Quaternion needed last minute adjustments to the flap design and utilized VICAMP’s new SLA rapid prototyping machine. As a result of this collaboration, Quaternion hired a Mechanical Engineering Technology graduate to help build the plane and sponsored a capstone project involving four second-year mechanical engineering students.

“As a result of the timely and professional service experienced through our initial project with Camosun, we expanded our relationship with the college and continued to build on our prior success with the college.”

— Quaternion Engineering Inc.
IQ Cartridge Design Project

Planet People offers high performance cleaning solutions made from 100% non-toxic and ecologically sustainable ingredients. One of its main brands, IQ, is a household cleaner that features small, no-mess refill concentrate cartridges that reduce plastic and landfill use by 80%. Planet People’s project with the Centre for Advanced Technologies at Seneca College will involve re-designing packaging for IQ products to reduce manufacturing costs and increase revenue and profit margins. Planet People expects that following this project, IQ-branded cleaners will become a strategic element in the company’s growth plans.

Cold-Weather Modifications of Plug-in Hybrid Electric Vehicles

Instructors and students from Red River College’s Automotive Program converted 10 Toyota Prius cars to operate as plug-in hybrid electric vehicles (PHEVs) using Hymotion Plug-in Conversion Modules (PCMs) from A123Systems Inc. The process included upgrading the Prius’ 12-volt battery system and making cabin warmth modifications. RRC tested one of the vehicles, while the other vehicles operated in the vicinity of Winnipeg for three years while being monitored.

The demonstration tested the effectiveness of PHEVs in a cold-weather environment and made cold-weather adaptations as necessary. On many occasions, the converted PHEV had lower fuel consumption than the factory-built Prius with no modifications under similar temperature conditions.

The cold-weather improvements were an important success factor for the Manitoba PHEV Demonstration. Without the assistance of RRC instructors and students, vehicle failure and reduced performance would have resulted. The Manitoba PHEV Demonstration showed the importance of evaluating and implementing cold-weather adaptations for individual types of vehicles to ensure optimal operation.
Innovation for Remote Monitoring of Energy Consumption

Eighteen years ago, Micro Thermo, a freezer-alarm manufacturer, called on the Centre d’innovation en microélectronique du Québec (CIMEQ), an affiliate of Collège Lionel-Groulx, to tackle the needs of food stores and design a software platform allowing establishments to manage their energy consumption remotely. Since then, the platform has continually evolved, and the latest version of the Micro Thermo Web Energy Logger (MT-WEL) can show supermarket chains’ energy expenses in real time, allowing them to control how much their equipment consumes and, as such, to cut their hydro bill by 10 to 15%. Three American chains and one Canadian chain are using the MT-WEL today. Micro Thermo now has its sights set on the Mexican market, and it plans to sell the new generation of MT-WELs in Europe. Thanks to its partnership with CIMEQ, Micro Thermo has gone from three employees to 60, including 20 in its R&D wing, several of whom are former CIMEQ interns.

WorkBike Prototype

RND Limited is a start-up company developing a product called the WorkBike. This innovative product provides the user with exercise while performing chores in an environmentally friendly manner. The aim of the collaborative work between RND Ltd. and the Centre for Advanced Technologies at Seneca College is to develop a prototype, including its hydraulics system. Upon completion, RND Ltd. will continue development toward a marketable product for commercialization. Based on market studies and projected revenue, 15 full-time jobs will be created once the product has been launched.

Automated Clothing Sorting Line

AVP Solutions is an inspection system company that develops automated sorting systems using lasers, electronic sensors and other advanced technologies. When the company wanted to create a new type of automated sorting line that worked on a conveyor belt, Sheridan College rose to the challenge. A professor and students from the Faculty of Applied Science and Technology developed a prototype automated clothing sorting line that is faster, more efficient and can cut manual labour by as much as 75%. This technology will also be used by the company to develop other sorting systems for use in other industries.

“This technology has so much promise – it could be used for clothing, garbage, fruit, and several other possible applications.”

— Charlie Thai, President and CEO, AVP Solutions
Self-serve Water Station

Giving customers access to clean water is the basis between a partnership between Niagara College and Water Superstore. The College and the retail water outlet are designing and marketing a self-serve water refilling station for the store’s clients, an initiative that can help the company grow its market share and attract new customers. The water stations, utilizing reverse osmosis technology to provide superior filtered, clean water to clients, will be installed in different locations at partner stores, in addition to the actual retail outlet of Water Superstore, giving customers more opportunities for service and increasing operating efficiencies and profits. Student research assistants have been helping with not only the business plan for the self-serve water stations, but also the prototype design of the actual unit. The cross-disciplinary approach at Niagara College provided Mechanical Engineering Technology students with the opportunity to apply skills such as computer-aided design during the development portion of the project, while Business Administration – Marketing students learned more about market entry and product promotion. Combining two of the College’s strongest areas of specialization has resulted in a big benefit to Water Superstore, a company anticipating an outcome that could bring innovation to the entire water-retail industry.

“I have learned volumes about engineering and it has been a great pleasure to work with the College’s enthusiastic and intelligent students. Niagara’s young engineers will carry us into a fabulous future and working with Niagara College is a great pathway for growth and expansion.”

– Jim Nimeth, General Manager, Water Superstore

Industrial Redesign of the Snap-N-Go Mop

A fourth year student from the Industrial Design program at Humber College worked with Concord, Ontario-based, Marino Vileda Professional to develop the next generation of industrial mop heads. Marino Vileda is a provider of innovative cleaning solutions and systems for professional users. The new mop head was ergonomically designed with interchangeable heads that allowed the user to expand the utility of the product easily, with the logo of the company designed into the body of the actual product. Marino is doing the final testing of the new design and expects to start selling the product in 2012. The student was interviewed by CBC Radio and chatted one-on-one with Diane Finley, Minister of Human Resources and Skills Development Canada.

“Kory is a remarkable designer. He was not only able to create a beautiful design; he incorporated functionality and branding into it. We were delighted to work with Kory on this project and will contact Humber College for possible future project involvement.”

– Marino Vileda Professional
Ply-me: Beyond Covers

After seeing so many towns in Guatemala littered with plastic bags, an entrepreneur returned home to turn this eco-crisis into a business opportunity. After experimenting and creating a process to form and refine plastic bags into a material now called Ply-me, the entrepreneur approached Durham College to assist Beyond Covers with proof-of-principle product testing to ensure it adhered to health and safety standards.

A research team, comprising faculty and student research assistants, conducted destructive and non-destructive testing on Ply-me’s colouring, durability, life cycle and ultraviolet protection.

Today, Ply-me is used to produce a variety of products for both residential and commercial use including barbeque covers, patio furniture covers, shower curtains, dog beds, shingles and recycling bins.

“I felt like I had won the lottery because of the involvement of people at the direct community and government levels whom the College was able to align me with. The value of Beyond Covers Inc.’s relationship with Durham College is unique. It enables us to combine real-time business practices with leading-edge technology while positively mixing academic curriculum with years of business wisdom. We are receiving state-of-the-art business assistance, information, guidance, engineering and testing for our product lines.”

– Jane Dempsey, President and Chief Executive Officer, Beyond Covers Inc.

Advanced Portable Air Purifier

Founded in 2003 by two Canadians, Heaven Fresh Inc. has been promoting the anti-aging and detoxification benefits of pure air and water. Their portable air ionizers and purifiers incorporate new technologies that tackle virtually every indoor pollutant and energize the air with negative ions. This collaboration with the Centre for Advanced Technologies at Seneca College will assist in the development of a digital Canadian model air purifier. It will be able to house Heaven Fresh’s Nano-technology filter for maximum efficiency to get rid of a wide spectrum of indoor air-borne pollutants. Selling this product online and through major retail outlets, Heaven Fresh plans to increase its global revenue and eventually create a number of full-time jobs in manufacturing and research and development in Ontario.
Emergency Response and Offshore Rescue

The Dacon Scoop is found on most standby vessels operating in Eastern Canada. A Dacon Scoop is a maneuverable rescue net (approx. 5m x 6m) that is operated from a standby vessel using its deck crane. The Dacon Scoop is used on standby vessels to provide an option for the rescue of persons directly from the water in cases where it is considered unsafe to launch fast rescue craft. The Fisheries and Marine Institute is working with Suncor to determine how this equipment can be used to rescue a group of people in an inflatable life raft. To determine the efficacy of this, a project was undertaken using standby vessels operating out of St. John’s.

Data has been collected during full-scale sea trials in a range of sea and wind conditions in which a 25 person life raft was recovered using a Dacon Scoop. The life raft was outfitted with mannequins to represent the location and weight of occupants accurately. Analysis is nearly complete with a technical report to be prepared by the end of the year. The results will be published and presented at the upcoming International Conference on Offshore Mechanics and Arctic Engineering.

The project was led by the Marine Institute’s Offshore Safety & Survival Centre, in collaboration with a graduate student and faculty from Memorial University’s School of Human Kinetics and Recreation.

“...we feel the results of this project will be a positive step forward in improving the capability of standby vessels to provide rescue for life raft occupants...”

– Suncor

Hot Water Molded Modular Solar Panel for Pool and Domestic Water Preheating

Air Molded Plastics is a leader in the production of custom plastic blow-molded items such as containers, automotive parts, and cases. The Centre for Advanced Technologies at Seneca College is undertaking a thorough analysis of structure, flow and heat transfer using simulation software; developing an A1 mold prototype of a scaled panel and a connector for a hot water molded modular solar panel for pool and domestic water preheating. The ease of assembly and low manufacturing costs of this product will help Air Molded Plastics increase its revenues and profits, and is expected to create full-time jobs.
Gelled Green Graffiti Remover

Conventional chemicals used in the graffiti-removal industry can be harmful to both people and the environment.

The Gelled Green Graffiti Remover was developed when Hotwash Inc. employees sustained injuries from using other commercial graffiti-removal products. Hotwash worked with its chemical supplier, Bri-Jess Industries, to develop an alternative, and then approached Durham College to test for effectiveness and safety.

Testing, analysis and product refinement was completed by a faculty member and two student research assistants in Chemical Engineering Technology.

Owing to the study’s findings and test results, Hotwash added the Gelled Green Graffiti Remover to its business operations to serve clients quickly and effectively in a safe manner.

“The resources at Durham College’s disposal are invaluable to a business of our type. Without the program and the wonderful staff running the department, we would have been greatly hampered in our efforts to take this product to market. It is a great feeling knowing that the resources are out there and others are genuinely concerned and driven to help develop a greener future.”

— Ed Gledhill, Founder and President, Hotwash Inc.
Electric Argo ATV Prototype

Durham College is working with Ontario Drive & Gear Ltd. (ODG) to develop, implement and test the conversion of a conventional fuel-powered amphibious All-Terrain Vehicle (ATV) into a vehicle that will run only on electricity.

The Electric Argo ATV will create a new product class for ODG and allow the company to sell its products into new, untapped markets including environmental surveying where soil contamination must be controlled or eliminated, military uses, where silent mode or autonomous operation is required, and individual/recreational use to meet growing electrical vehicle demand.

Students and faculty see the application of classroom subject material as applied to new Electric-hybrid vehicle technology. Programs affected include Electrical Technician (electrical theory, electronics, instrumentation, motor controls, programmable logic controllers) and Renewable Energy Technician (electrical theory, battery storage systems).

“ODG chose Durham College for its electric Argo project because of the excellent reputation of the College in sustainable resource development, superior technical/automotive curriculum. The project is very much in line with ODG’s internal research and development program and new product development. I strongly recommend industry participation with Durham College.”

– Tom Polanic, Product Manager, Ontario Drive & Gear Ltd.

Transforming Shipping Containers into Dormitories

A team at College of the North Atlantic is working with Dormatecture to construct a prototype dormitory from a shipping container. It will strive to be off-grid in terms of its energy, water and sewer usage. Students in the Architecture Engineering Technology program are responsible for the design, and construction will be performed by students in the various trades. Once plans have been approved, the construction phase will begin. Construction will be performed by students in the various trades needed to do the work.

The completed prototype will serve as a basis for a full scale dormitory constructed of stacked shipping containers which could be used throughout the world for student housing, construction camps, back-country tourism, hotels, disaster relief, and mining exploration and countless other applications.
Natural Resources

Reclaiming Mineral Residues: Good for Revenues and the Environment

This research initiative involves reclaiming mineral residues left behind by quarry extraction in Quebec’s Abitibi-Témiscamingue region and converting them into marketable products, in this case muscovite and silica concentrates. The process allows the business partner to generate extra revenue and reduce the environmental impact of its activities. The Centre technologique des résidus industriels, affiliated with Cégep de l’Abitibi-Témiscamingue, devised a new dry process in the lab for manufacturing superior quality silica and muscovite concentrates with optimal reclamation rates. In addition, the dry process costs less than traditional wet processing. The research results allow the partner company, Les Pierres du Nord, to explore potential North American markets for the two concentrates, thus expanding its line of marketable products while decreasing residue deposits at the quarry site itself. University and college students were able to play a direct role in the project, acquiring concrete skills in the dry processing of mineral residues.

“The partnership between Les Pierres du Nord and the Centre technologique des résidus industriels supports our plans to build a multi-purpose plant in Témiscaming that will strengthen our sustainable-development efforts and inject more direct economic benefits across the region.”

– Les Pierres du Nord

Surficial Geochemical Methods for Detecting Buried Mineral Deposits

Most exposed ore has already been discovered in Newfoundland and Labrador. Any remaining economic deposits are hidden under meters of glacial till or well below the surface of exposed bedrock. Geophysical and geochemical methods for mineral exploration are needed. The College of the North Atlantic has partnered with Aurora Energy to apply traditional geochemical techniques used in pure research to mineral exploration. Research on trace element mineral chemistry using Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS) and Mineral Liberation Analyses to find buried uranium and nickel sulfide deposits has been the focus.
Producing Eco-friendlier Biological Foamers and Wetting Agents

The Centre National en Électrochimie et en Technologies Environnementales (CNETE) at the Collège Shawinigan designed a novel production process for a high-performance, eco-friendly bio surfactant – biological foamers and wetting agents. CNETE then teamed up with the firm Innu-Science to perfect the process and transfer the technology to this business partner. The biotechnological additive in Innu-Science’s products will not only slash the number of active agents without compromising performance, but also reduce the need for ingredients derived from fossil fuels. That means less pollution and even safer handling of professional hygiene products, all at a competitive price. The partnership is continuing so that the team can work to maximize the production performance of genetically modified strains. Innu-Science ultimately hopes to market this unique ecological biomolecule.

Crop Research

Lakeland College’s Student Managed Farm is a thriving centre for crop research. The Farm has extensive facilities for agricultural sciences training and research including 1,700 acres of college-owned land, purebred Black Angus and commercial cattle herds, Dorset and Arcott sheep, and Holstein and Jersey dairy cattle. Bayer CropScience accesses Lakeland’s capacity to conduct field trials of new hybrid canola varieties, crop protection products and innovative cropping methods. Lakeland’s recently increased land base has the potential for increased agricultural research and Bayer CropScience will continue its partnership with Lakeland. The partnership helps students network with the agricultural industry.

“Conducting our trials with the College adds a level of credibility to our work. It also gives us a third-party, neutral, local location to showcase our products and demonstrate results, helping growers see how it will work on land similar to their own.”

– Leighton Blashko, Market Development Agronomy Specialist, Bayer CropScience
A Mobile Prototype to Extract Cedar Oil

Through a partnership involving Niska North, the town of Chapleau and Collège Boréal, this project is bringing hope for the economy of the single-industry region of Chapleau, which is struggling with the downturn in the forestry sector. Keen on stimulating job creation in the area, a student at Collège Boréal designed and built a prototype to allow the commercial-scale extraction of essential oils from the white-cedar residues of log-cutting operations. The project ultimately attracted the interest of other students, resulting in two similar initiatives with Niska North, namely the extraction of birch syrup and the extraction and purification of both betulin and betulinic acid in chaga (birch mushroom).

“This partnership with Collège Boréal and the town of Chapleau has given us the chance to look into an ingenious idea, to assess how it might be implemented and to build a prototype designed especially with our saw mill equipment in mind. Thanks to Collège Boréal’s innovative approach, our company can now look at new avenues for development.”

– Wade Cachagee, President, Niska North

“Making full use of all the resources involved in the forestry industry is a rational way to reinvigorate the economy of municipalities that depend on this sector. As residents of Northern Ontario, we can see how combining Collège Boréal’s expertise in applied research with Niska North’s know-how in logging has the potential to strengthen economic activity in our region.”

– André Byham, Mayor of Chapleau

Designing a New Way to Retrieve Chrome from Industrial Effluents

The Centre des Technologies de l’Eau (CTE), affiliated with Cégep de Saint-Laurent, successfully adapted a technology developed by Metafix, a Montreal-based business. Originally used to recover silver from photo-lab effluents, the technology underwent technical adjustments so it could be used to reclaim chrome from effluents produced by the surface-processing industry. A patent has now been requested for the modified process.

In the first stage of the process, a sort of metallic exchange takes place between the iron in steel wool and the hexavalent chrome in the industrial effluent. Once electrons are exchanged, the hexavalent chrome is broken down to trivalent chrome and retrieved as precipitates.

The results obtained through this new process have surpassed those of competing approaches. Metafix has therefore been able to strengthen its range of industrial-effluent treatment technologies and to consider expanding into new markets.

“The CTE’s scientific and applied expertise played a key role in our efforts to develop a process for retrieving hexavalent chrome from industrial effluents.”

– Metafix
Vectrack-1: At Your Service!

Based in Trois-Rivières, GDG Environnement performs biological control operations on biting insects, monitors and contains West Nile virus, and reins in invasive plants throughout Eastern Canada.

GDG created the Vectrack-1 prototype, a machine that continuously records all field activities. Every time a GDG employee presses down on a nozzle trigger (included in staff equipment) to spray a product, a wireless signal goes out to Vectrack-1 with the help of a mixer unit (which transmits and receives). Vectrack-1 first records the GPS position, the time and the duration of activities, such as the application of products; then, in a few seconds, it downloads the data to GDG’s Web portal, making it easy to produce real-time reports in data-table format or as interactive e-maps.

The Centre collégial de transfert de technologie en télécommunications (C2T3), affiliated with Cégep de Trois-Rivières, worked with GDG to design Vectrack-1’s programming and electronics and to support the company in its efforts to transform the prototype into a fully operational unit ready to handle actual conditions in the field.

With Vectrack-1 now in the patenting process, GDG is assembling the first 100 units, which it plans to deploy within the company and to external users for demonstration and promotional projects.

“The C2T3 collaboration played a pivotal role in our ability to turn the prototype into a field-ready unit.”

– Christian Back, Vice-President of Science and Technology, GDG Environnement

Green Fuel from Roadside Weeds

Farmers in Northern Alberta will soon be producing green fuel from a common weed, thanks to research done at Olds College. A High Prairie farmer worked with research scientists, students and technicians at the Olds College Centre for Innovation to undertake a pilot project to analyze the quality and performance of pennycress oilseeds as a potential source of biodiesel. The research showed that pennycress seeds are easy to press and the biodiesel produced is superior for blending and use in Northern locations and in winter months. Farmers in the High Prairie and Lesser Slave area will be able to grow pennycress on marginally productive land and sell it to the High Prairie plant. It is estimated that the plant will generate 100 direct and indirect jobs.

The applied research partnership between a local entrepreneur and Olds College has already had commercial results. Stan Peacock has created the All Peace Industries for the crushing and biodiesel facilities and the Green Fuel Company for pennycress research and production. Olds College is looking at other ways to use the meal produced from the pressing process, possibly as organic fertilizer and bio-herbicide.

“The result of this research has opened the doors to government agencies and investors that rely on the scientific process to ascertain the credibility of new industries.”

– Stan Peacock, High Prairie Farmer
A Rural Wild Berry Laboratory in the Lower North Shore Region

The team at Biopterre has joined forces for this initiative with the Cégep de La Pocatière, and the Institut de technologie agroalimentaire with the Coasters Association, a development agency in the Lower North Shore municipality of Rivière-Saint-Paul. In the initial phase, the partners worked to inventory non-timber forest products (NTFPs), confirming the viability of establishing large populations of wild berries in the same area. To conduct an inventory over such a large expanse, Biopterre piloted a new technology: tele-detection. In a nutshell, tele-detection combines spectral data with spatial data gleaned from a digital field model to locate areas where specific NTFPs could grow.

The approach speeds up and improves the surveying process for productive wild berry sites. So far, the results have truly impressed, and the Biopterre team is now working to link the potential yield of productive areas to map-based search methods, while transferring the knowledge to the local technical crew. This stage is crucial to the team’s ability to deliver the wild berries needed for the 2012 production targets. In turn, the Coasters Association is planning to market a whole range of wild berry-based food products, thus generating employment opportunities in the community.

“Pre-production in La Pocatière…what an experience! We must take this opportunity to thank several people who made this experience a truly educational and enjoyable one. A sincere thank you to Biopterre’s team, who was always there to assist us and make us feel welcome.”

– Priscilla Griffin, Wild Berry Coordinator, Coasters Association

Polyculture Development

The College of the North Atlantic partnered with the Town of Lord’s Cove Harbour Authority to develop an integrated tank-based aquaculture system that is environmentally sustainable and economically feasible. The lead researcher is setting up a land-based pilot aquaculture farm to optimize a cascaded poly-culture system. The tanks will be set up to raise salmon and sea urchins. Mussels and scallops will be used to filter out the suspended particulate matter from the salmon and sea urchin tanks’ effluent. The effluent from these mussel and scallop races will be used to sustain macroalgae populations. This will significantly reduce the nitrogen content of the effluent. The macroalgae will in turn be used to nourish the sea urchins.
A Prototype for Harvesting Mussels

Mussel farming in Quebec is facing major challenges, including elusive profitability. Producers have no control over selling prices. To cut down on their production costs without compromising efficiency, a number of mussel farmers are turning to technological innovation.

The firm La moule du large called on the Centre collégial de transfert de technologie Halieutec, affiliated with Cégep de la Gaspésie et des Îles, to optimize a prototype sorter-separator that shells, washes and sorts the mussels during harvesting. Halieutec adapted a machine ordered from France that could be fastened right to the boat. The results have been excellent. Because it tucks into a corner on the bridge, the machine saves space on board; the boat’s processing rate is faster and its sorting efficiency has gone from 60% to 75%. The crew can now work continuously and save time, because they no longer have to stow the catch and halt harvesting to make time for sorting.

The team also had to modify the machine because mussels in the Magdalen Islands area are slightly bigger. The research and design team adjusted the bar spacing on the drums to improve the sorting process. La moule du large is delighted with this technological advancement. Although it is the only company using the new machine for now, other producers have shown an interest. Halieutec, which is always looking to the future, already has other upgrades in mind for its prototype.

“In Quebec, the weather is really unpredictable, so every day you can spend at sea is a precious one. With this machine, we’re now able to make the most of each of those days, and our yields have shot up.”

– Christian Vigneau, President, La moule du large

Nano-bubble Technology for Environmental Remediation

Old’s College’s Centre for Innovation (OCCI) and its Prairie Turfgrass Research Center are working with BioAdvanta Environmental Solutions on the application of their Nano-bubble Technology to horticulture production and the treatment of black plug layer in turfgrass, especially in golf courses. The technology has been shown to be effective in the treatment of wastewater from municipal and treatment of oil and gas plant effluents. OCCI has been working over eight years in the development of the technology with local innovator and businessman, Mr. Jim Bowhay and his partners, which has led to the creation of BioAdvanta Environmental Solutions.

“We are fortunate to have a college that understands industry needs and can provide scientific research and advice on the development of new technologies and products in real life situations. Olds College is our one-stop shopping for unparalleled, professional, applied research services.”

– Jim Bowhay, Vice-President, BioAdvanta Environmental Solutions
Renewable Energy

Demonstrating Renewable Energy in the Community

The Elk Point Visitor Information EcoCentre is powered entirely by wind and solar power, with the excess power fed into the grid. The EcoCentre is one of Lakeland College’s research test sites under the Lakeland College Center for Sustainable Innovation program. The wind turbine and solar panels can be seen from the highway and inside, the benefits of solar and wind power are on display. An unexpected outcome of the research was the recognition that the nighttime lighting for the adjacent hockey rink was a huge energy sink. The EcoCentre is working with the college to explore more energy-efficient ways to light the outdoor arena to reduce costs while providing a quality service to our community.

“Lakeland College was a phenomenal partner to work with on the project. They supported the project by providing resources, man-hours, equipment, technical support and exposure. They also added credibility to the project. Our town, the community, our businesses and families have all benefited from the partnership and the new EcoCentre. Locals come to learn just as much as intrigued people coming in from the highway who notice the turbine – normally only seen in southern Alberta.”

– Bob Bezpalko, former Economic Development Coordinator, Town of Elk Point

Valorization of Waste Materials

Loyalist College is working with Turtle Island Recycling to assess the commercial viability of converting spent coffee grounds into bio fuel and of a nutraceutical application for tomato waste. With the spent coffee grounds, supercritical CO2 extraction was carried out and a biochemical profile completed. The next step is to determine conditions for pilot scale-up studies to assess commercial viability. To assess the commercial viability of tomato waste in a nutraceutical application, researchers conducted an analysis of lycopene and developed major carotenoids based on available instrumentation. Previously investigated methods for extraction have been reviewed and conditions of the current study have been determined. This project has provided a real life case study for students enrolled in the Biotechnology Technologist program: Extraction Technology course.

“This collaboration project provides us with the expertise of directed theoretical/academic research to test the commercialization of a new business opportunity, while contributing to the community and bringing industry needs into the classroom.”

– Turtle Island Recycling
Guide for Retrofitting Homes for Energy Efficiency

Faculty and students from the Architectural Technology and Construction Science and Management Program at George Brown College are making it easier for home-owners to conserve energy and save money. Buildings consume about 40% of the world’s primary energy, a staggering figure that can be reduced with effective, energy-efficient retrofits. However, current information and surveys on retrofit options often leave home-owners confused.

The research team is developing an Online Interactive Guide for the Retrofit of Various Vintages of Houses, providing accessible information on best practices in retrofit options. The three-fold focus is to improve a building’s energy efficiency and durability, while keeping it healthy. The first phase of the guide focused on the most common type of Toronto home: a solid masonry double width brick construction from the early 1900s. By scrolling through photos and diagrams, users can identify the type of construction. From there, they find evaluations of retrofit options for the entire house, from basement to roof. This Guide will reduce the city’s carbon footprint, one home at a time.

Biomass to Biochar and Energy Pilot Reactor

The production of carbonized material from biomass is an ancient process (charcoal making) that is resurging as a method to remove carbon from the atmosphere and either sequester it in the soil or utilize it as a non-fossil fuel source. Langara College in partnership with DiaCarbon Energy Inc. has constructed a small batch (1kg) pyrolysis reactor and is analyzing the reaction products, especially the biochar solid residue. The analysis is correlated to the products of a full scale reactor operated by the company, allowing rapid assessment of various biomass feedstocks and providing insight into the relationship of process conditions to biochar characteristics. With interest in the chemical characteristics of biochar being relatively recent, most analysis methodologies are in flux. This project has developed techniques to obtain reproducible results. Students gained valuable technical and research skills.

“Langara College’s Biomass to Biochar project has filled an important research gap in this field locally, which has helped our small enterprise make competitive operational decisions.”

– Dr. Jared Taylor, DiaCarbon Energy Inc.
Control4 Home Automation System

While home automation systems have long been available, they are generally not integrated. A house might have an automated alarm, lights and heating but none work together. A George Brown College team linked intelligences by installing the Control4 Home Automation system supplied by Trivista Smarthomes and integrating the home’s energy management sub-systems into the home automation controller, which will adapt to its users’ patterns. The system also monitors energy use, informing the homeowner of how much energy is consumed and where, a significant innovation. Providing the homeowner with a visual indication of power consumption promotes conservation. While the Trivista Control4 system is designed for high-end homes, researchers see potential for a larger market. Making intelligent home automation accessible to the average-income homeowner is the next phase of the project.

Northern Greenhouse Research Project

The Yukon Research Centre at Yukon College and students have designed and built an experimental greenhouse that incorporates an array of innovations and adapted technologies to overcome the challenges faced by northern growers. It is designed to run off-grid during all four seasons. The innovative aspects of this project include the use of Stirling engine technology for heat and power, quad-pane polycarbonate glazing for reduced heat loss, LED grow lights for efficiency and longevity, and automated night shutters utilizing vacuum insulated panels for thermal efficiency. This greenhouse uses an assortment of established greenhouse tricks to optimize heat management, efficiency and plant growth, a large volume of thermal mass, in-bed heating loops, and a heat transfer system to bring hot air from the ceiling to heat the roots of the plants. The various systems of the greenhouse are optimized by automated controllers for consistency and efficiency.

“I think this is great! As a greenhouse operator I am excited about the possibility of extending my growing season and reducing my energy needs in the spring and fall. I am also looking forward to learning about some of the automation techniques that I could use to reduce the energy intensity of greenhouse management.”

– Barbara Drury, Circle D Ranch
**Portable Wind Turbine**

If you are out gathering data on wildlife in Algonquin Park, how do you charge your camera battery? George Brown students, in partnership with FOD3, designed a wind turbine that will fit in a hockey bag. The 3P-Portable Power Pack generates 40 watts of power, enough to recharge small batteries. The 3P can be easily carried into remote locations, unfolded and erected without tools. Industry partner FOD3 came to George Brown’s Mechanical Engineering Technology Design program to develop a base design platform that could be used to test and develop further subsystems. The project was selected as a finalist for the Ontario Centres of Excellence Discovery 2011 awards.

“To see it all come together and our hard work complete, it was amazing!”

— Laurelle Dawson, Student

**Co-continuous Polymer Blends Developments**

Lambton College researchers in collaboration with University of Minnesota and Bluewater Power are working on deriving porous polymer films from co-continuous blends. Applications for the developed polymer films are gas separation membranes (specifically CH4/CO2 separation), lithium-ion battery separators, and fuel cell membranes. In the case of CH4/CO2 separation application, many industries in the bio-gas production business are challenged by the low CH4 concentration, and any improvement will be significant for this sector.

Membrane technology using microporous/nanoporous co-continuous polymers with novel ionic gel as the selective layer is a promising path for gas separation membranes.

“Bluewater Power currently operates a landfill gas collection site to power a generating plant that is under-utilized. The successful outcome of this project will allow us to separate economically CH4/CO2 from bio-gas and enable Bluewater Power to produce ‘methane-only bio-gas’ as a renewable fuel source for this existing plant.”

— Bluewater Power

**Green Energy Solutions**

Global Power brought their energy inverter, a system that converts solar and wind power into battery power, to George Brown’s School of Technology for field testing. Global Power had the prototype, but they needed to field test it before taking it to market.

The research team tested the system with multiple wind turbines and did the first installation of a tested unit. Students were able to see how the system was charging the battery with wind and solar energy. Two hundred solar and wind inverters are now going on the market.
Northern Climate Solar Tracking System

Electrical Engineering Technology students at Sault College collaborated with faculty and industry partners Rowswell & Moss Inc. (RMI), and N-Sci Technologies Inc., to conduct applied research for the development of an innovative electrical tracking control system that will be utilized in the positioning of solar arrays.

The prototype system will be deployed and monitored. It is expected to outperform competitor systems in northern climates. Because of its anticipated low maintenance cost, this innovative tracking system, together with the unique geometry of the prototype arrays, should be commercially viable for large scale solar installations that traditionally deploy less efficient, fixed-axis systems. These results position RMI to manufacture the patentable, made-in-Ontario frames and tracking systems in the community, creating local employment opportunities and economic benefits.

This project resulted in employment opportunities for both students with N-Sci Technologies Inc.

“The next steps for commercialization of this technology are the most critical and involve proving the performance of the pilot scale installation, and Sault College will play an integral part in this process by providing assistance in data monitoring, data collection, result analysis and optimization to better enhance the product.”

– Joel Rowswell, Rowswell and Moss Engineering Inc.

Renewable Energy Conversion and Storage Research

Energy generated by renewable sources is intermittent and, in the case of wind energy, often produced at times when not required. Lambton College partnered with Paton Controls to research how to buffer the resulting electrical output and release it on demand. The research is looking at the integration of renewable energy generation technologies and the viability of a hydrogen-based energy storage and production infrastructure with the goal of optimizing the energy-related assets. The objective is to develop an Energy Management Controller that enables the outputs of the renewable energy sources to be used directly, stored, or be released on demand from the storage media. The development of this technology will have multiple applications for the renewable energy sector, including for the mobile or stationary emergency power back-up market.

“Paton Controls is extremely excited to be working with Lambton College and our industry partners on this game-changing technology.”

– Paton Controls
Geotechnical Mapping for Climate Change Planning

The Yukon Research Centre at Yukon College partnered with the Kluane First Nation to conduct a landscape hazard assessment in Burwash Landing and Destruction Bay, two small communities along the Alaska Highway in southwest Yukon. The project identifies landforms, sediments and landscape processes that may pose a threat to ongoing and future community-based development under current and changing climate conditions. This project involves permafrost, surface and subsurface hydrological and surficial geological characterizations so that the information can be mapped to support future climate change adaptation strategies.

“This project will provide invaluable information to the Kluane First Nation and will assist us in our continued work in developing renewable energy infrastructure.”

– Colin Wright, Environment Officer, Kluane First Nation

Harnessing Wind and Solar Power to Make Security Feasible at Remote Sites

UCIT Online Security installs surveillance cameras at construction sites, commercial, industrial and manufacturing facilities. Looking to expand their multimillion-dollar business to remote sites, they approached George Brown’s School of Technology to help them provide video surveillance where no electric power is available. Faculty and students installed the UCIT camera system on the roof at Casa Loma and monitored the electricity required. The team quickly realized that solar power alone was not adequate for the continuous, 24-7 power demands of video surveillance. A prototype that rearranged the computer processes so they could run off solar and wind was developed.

“UCIT is opening new offices in Calgary and Vancouver. That’s the area where we see real need for these cameras. The George Brown-tested solution is now up and running and UCIT will soon be installing the cameras on remote sites in Alberta and BC.”

– Sidney Sommer, President, UCIT
Social Innovation

Passenger Ship Safety

Evacuation analysis has become an important part of the design of passenger ships, particularly given their increasing size and capacity. Properly modeling the complexities of passenger response to alarms and behaviour during emergencies is fundamental to successful ship evacuation analysis. The Fisheries and Marine Institute is leading Project SAFEGUARD with funding from Transport Canada and the Newfoundland and Labrador R&D Corporation with a consortium of partners.

SAFEGUARD is validating whether the models make accurate predictors of the evacuation process. SAFEGUARD partners have collected a large database of human performance indicators during planned evacuation trials on three different large passenger ships while at sea - two ferries and a cruise ship. Novel methods of collection have been developed to collect data for 5,600 passengers, including response to the alarms, evacuation routes and individual assembly times. This is the most comprehensive passenger evacuation database ever collected. Project SAFEGUARD will result in significant improvements to international regulations governing passenger ship safety.

“The wealth of data that has been collected...will eventually contribute to improving safety at sea.”

– Professor Ed Galea, Director, Fire Safety Engineering Group, University of Greenwich

A Prototype Financial Planning Model

Penny Shore & Associates Inc. has more than 25 years of experience publishing mass market consumer educational books and multimedia materials. The aim of the collaborative project with Seneca College is the development of a prototype financial planning model and program. The final product will be marketed to governments and other employers to help employees manage their finances. P. Shore & Associates anticipate that this product will increase revenue opportunities and create jobs.
Good Food Box – Supporting Local Producers

The non-profit organization, Good Food Box, was founded on a relatively simple idea: to deliver locally produced or sourced foods to customers’ homes in Edmonton, making it easier for residents to support local suppliers. When the customer base wasn’t expanding as quickly as hoped, the Good Food Box turned to novaNAIT.

Though Good Food Box had previously worked with a professional marketing firm, NAIT provided support through marketing advice, business development and planning including the exploration of the market, focus groups, surveys, and other conventional marketing tools. This information was taken further to provide Good Food Box with an understanding of customer behaviour and a list of clear solutions that were ready to implement, for example, a switch from next-week to next-day delivery, which has attracted new customers.

NAIT’s Digital Media and Information Technology program designed a website for Good Food Box to promote eating local and to connect food producers with consumers and restaurants. NAIT’s relationship with the Good Food Box has just begun and represents NAIT’s commitment to supporting social entrepreneurs.

“NAIT gave us specific strategic direction and instruction on how to overcome some of the issues with our business model. I think NAIT can really make a difference to small and local business communities.”

– Jessie Radies, Founder, Good Food Box

Musical Games to Help Children Build IQ

MusIQKids, a Toronto educational software company, has partnered with George Brown College to create an online interactive game that uses music to help kids build their cognitive skills. First-year students in the Game Development program designed the art, assets and animations for the educational game based on MusIQkids’ Smarter Kids Training (SKT) modules. According to MusIQKids, testing showed that SKT does indeed work: “The children of the training group improved up to 14 IQ points more than the control group.” The game will be on the market by 2012.

“SKT improves cognitive skills such as memory, language skills, reading skills and global intelligence (IQ). [The game works because]... each exercise is targeting a brain network related to one of these brain skills. [Students’] experience in this field helped us to overcome many difficulties at the technical level.”

– Laurent Moreno, CEO, MusIQkids
Microarrays: A Wetlab Simulation

The study of genomics has brought about welcomed advances in disease diagnostics and drug treatments. Educators have been keen to demonstrate the basics of DNA gene expression at the high school level to stimulate curiosity in genomics research, but the technology required to work at the molecular level makes DNA microarray teaching tools prohibitively expensive. Researchers at Centennial College created a simple wet-lab microarray simulation kit that could be used in conjunction with curriculum prepared by the Ontario Genomics Institute to engage inquisitive students. Centennial’s team devised an all-liquid simulation kit that is safer, quicker and easier to use. The simulated genes change colour because of the pH level, effectively using chemistry to emulate the indicators geneticists look for in their microarrays. The slides display just six genes, easily seen by the naked eye, making a microscope unnecessary. Centennial’s microarray simulation kits soon will be standard fare in grade 11 and 12 science classes across Ontario.

“The Ontario Genomics Institute is a not-for-profit corporation that seeks to catalyze the life science industry through genomics. It is essential that the next generation of scientists have access to state-of-the-art educational tools. Centennial College provided a microarray kit that brings the lab experience to the classroom in an exciting and relevant way so that teachers can incorporate experiential learning of a complex idea into the classroom.”

— Alison Symington, Ph.D., Vice-President, Outreach, Ontario Genomics Institute / MaRS Centre – Heritage Building

Web-based Science, Technology, Engineering and Mathematics Educational Game

Red River College (RRC) students partnered with Winnipeg-based Cogmation Robotics for the development of a web-based infrastructure for an educational game that would be applied to the Science, Technology, Engineering and Mathematics curriculum of primary and secondary education institutions worldwide. Students developed a database, and a web interface that will enable the educational game to have a social media framework, similar to a Facebook application. The end result was a functioning, proof-of-concept model. Cogmation Robotics would like to continue its partnership with RRC to begin the next phase of the project.
Citizen Society Research Lab

Take one poll, with 25 questions, asked by 90 students interviewing 1,200 Albertans – the results are 350 news items regionally, nationally, and internationally as far away as the People’s Republic of China. The Citizen Society Research Lab (CSRL) at Lethbridge College is an applied research and teaching initiative specializing in quantitative public opinion studies. Students measure public opinion across Alberta on a variety of issues that are of interest to students, faculty and community partners. Over the years 15 community partners, including news outlets and community groups, have paid to add questions to the omnibus survey. Students participate in all aspects of the social science research project, including witnessing how the results of their research are used by various organizations in their real world applications.

“It allows public feedback to the Police Service in a proven method.”
– Tom McKenzie, Chief, Lethbridge Regional Police Service

“Informative and interesting… extremely cost effective…”
– Peter Deys, Manager/Director, Global News Lethbridge

“Having this service available in Lethbridge, rather than out-sourcing to a company in another city is valuable to EDL.”
– Cheryl Dick, CEO, Economic Development Lethbridge

One Smart World

One Smart World helps people, teams and organizations everywhere use their total intelligence to work smarter together and succeed, by providing an operating system built for the collaborative workplace. The company launched a partnership with George Brown College to help them market their ‘smarter’ portfolio of software. The company needed sound marketing recommendations, guidelines and practices to support sales growth and establish the brand.

Four George Brown Business Administration students created a 91-page Go-to-Market Guide with recommendations that ranged from online video marketing practices to brand portfolio/strategy development and strategic partnership agreements. Students working on the project gained not only skills but also developed confidence in their abilities.

“The report has proved to be the perfect guidebook and One Smart World is in the process of implementing many of the students’ recommendations. Partnering with George Brown on this project was a tremendous investment.”
– Lisa Wiele, Marketing Director, One Smart World
A Study of Immigrant Workers on Quebec Farms

As a result of the aging population and labour shortages in the agricultural sector, the number of immigrant workers on Quebec farms has grown exponentially. The main challenges are the working conditions and the workers’ integration into the companies that hire them and the communities that host them.

The Centre d’innovation sociale en agriculture, affiliated with Cégep de Victoriaville, is working with the Fondation des entreprises en recrutement de main-d’œuvre agricole étrangère to better understand immigrant workers’ experience on Quebec farms and to set the stage for future discussions and analyses on this growing phenomenon—one for which virtually no literature exists in the province.

The study explores how workers are welcomed and integrated, and assesses their conditions and job satisfaction. The ultimate goal is to produce a best-practices guide for employers, workers and participating countries.

“We’re delighted to see that a college-level research centre is willing to take a close look at the challenging issue of migrant labour and, as such, help agricultural businesses adopt more professional management practices for these workers. Innovative projects like these address the range of concerns we have for employers, for workers and for the other individuals working and living in the rural communities involved.”

– Fondation des entreprises en recrutement de main-d’œuvre agricole étrangère

The Impact of Body Image on Students

Mental and physical health challenges can arise from perceptions of one’s body image and self-esteem, and youth are particularly vulnerable. A study at Red Deer College (RDC) is examining how learning interventions in Grade 4 classrooms on self-esteem, body image, healthy eating and physical activity can yield positive results and prevent health issues during adolescent development. Children who learn to develop and foster a healthy sense of body image and self-esteem reduce their chance of being affected by mental and physical health issues later in life. Presentations given by RDC Health Psychology students provide an opportunity for the students to engage in applied learning. The efficacy of the presentations is being assessed, and if the learning intervention proves beneficial, it may become a permanent part of the education curriculum in Red Deer. The partnership between RDC and the public and Catholic school districts has enabled more than 600 students to learn about healthy living.

“Early educational interventions dealing with healthy body image, self-esteem, nutrition, and physical activity can promote lifelong wellness and prevent health issues later in adolescence.”

– Dr. Anomi Bearden, Psychology instructor at RDC
Supporting Local Business Success

Lakeland College and 14 community-minded organizations have partnered to develop and launch the Regional Business Accelerator (RBA), a collaborative business support organization. The RBA is focused on growing the region’s economic diversity and strength one small business at a time. The goal is to support sustained economic growth that advances the region’s collective social, environmental, and economic well-being by connecting business, research, education, non-governmental service providers, governments and the community. RBA’s approach includes enhancing the quality of entrepreneurial education and support systems through collaborative programs; partnering to promote growth in exports; enabling entrepreneurs to establish their businesses; and fostering lifelong entrepreneurial learning. Only one month after the launch, the RBA is mentoring several local businesses, including some technology start-ups.

“A lot of organizations offer business support in the region but there was no clear place for entrepreneurs to start and for existing organizations to collaborate to close the gaps between their services...our region is well known for entrepreneurial and innovative activity. We believe that business incubation and mentoring will have a tremendous impact on the success of our regional innovators and our ability to retain them in our region’s communities.”

– Ward Read, CEO, Lloydminster Economic Development Corporation

“Lakeland College was a key driver for the development of the Regional Business Accelerator. They led the research to explore the feasibility of the project and helped to develop a model that we believe fits our region’s needs.”

– Linda Jacejko, Councillor, Town of Vermilion

Financial Crime Patterns and Typologies

Williams McGuire AML Inc. protects clients from terrorist financing, money laundering and other financial crimes through tailored and informed risk and regulatory compliance solutions. The company focuses on risk analysis, effective controls and assessment of compliance regimes and controls. Williams McGuire AML Inc. and Seneca College are collaborating to develop a descriptive and predictive database for financial institutions to prevent financial crimes. This project includes a predictive and dynamic model for financial crime prevention, detection and deterrence.
Strategies for Working with South Asia Male Perpetrators of Intimate Partner Violence

‘This is a man’s problem’ is an exploratory project with frontline practitioners in lower mainland South Asian communities of British Columbia. The Justice Institute of British Columbia partnered with B.C. Corrections and practitioners from non-profit agencies to examine the development of effective prevention and intervention strategies for male perpetrators of intimate partner violence. The first stage involved in-depth qualitative interviews with 15 frontline practitioners. The researcher also met with a focus group of South Asian men engaged in a court mandated assaultive men’s group-counseling program.

There is little research concerning intimate partner violence grounded in the experience of Punjabi Sikh and other South Asian men who are first generation Canadian immigrants, and even less on marginalization and racism, differences based on sponsorship status, the influence of alcohol and the importance of initial police intervention. As a consequence, education and training programs for frontline practitioners – police officers, probation officers, social workers, counselors and psychologists – do not include the information they need when working with these communities. This report bridges this gap.

“This report addresses some very important topics – how to work with men that have been violent, because you cannot assist them to change if you do not understand them and their circumstances, as well as what our communities can do to end this problem. It demonstrates that our communities have the ability to stop domestic violence, they just need the tools. It is very important research that needs to be read by practitioners, community members and government.”

– Dr. Rajpal Singh, Psychologist, Indo-Canadian Spousal Abuse Counselling Program, DIVERSEcity Community Resources Society
Local Food Project: Strategies for Increasing Food Security on Vancouver Island

The Vancouver Island Community Research Alliance comprises Camosun College, University of Victoria, Royal Roads University, North Island College and Vancouver Island University. Student interns conducted research on local food and sustainability in five key areas: urban agriculture, climate change, food security, institutional purchasing and indigenous food systems. Working with an advisory committee of community members and academics, the students created reports and digital stories about the issues, current activities, and future actions that would strengthen the island food systems. These products assist community members, local governments, First Nations and institutions to improve long-term food security on Vancouver Island.

Domestic Violence Prevention and Reduction in British Columbia

The Centre for the Prevention & Reduction of Violence (CPRV) of the Justice Institute of British Columbia is reviewing domestic violence prevention and reduction initiatives in British Columbia including legislation and policy, training initiatives for service providers across systems, and efforts to strengthen the community response to domestic violence such as public awareness campaigns. National and international prevention programs are identified. Primary prevention strategies that address the root causes of crime and strategic investments in children and families are studied. Follow-up will outline primary, secondary and tertiary prevention strategies, and make specific recommendations, to inform policy decisions within private and public sector agencies.

“The domestic violence report represents one of the pivotal pillars of CPRV’s mission to reduce and prevent violence. It gives the community, the policy makers, and the practitioners the important information they need to demand social change. This is a stellar piece of work that must be understood and embraced so that we can take action immediately!”

— Frances Grunberg, British Columbia Institute Against Family Violence
Enhancing Online and Alternative Delivery Learning

Bow Valley College and its partners led two applied research projects designed to investigate and develop best practices for supporting students who engage in alternative forms of learning. The first, Successful Practices in Supporting Students in Distributed Learning, confirmed ten best practices for supporting alternative learners, and contributed to the expansion of alternative learning programs as viable options to traditional classroom-based learning. Phase II entailed the development of an electronic toolkit, which will assist colleges in implementing these best practices. The second project, Meeting the Needs of Diverse Learners Engaging in e-Learning, assessed the needs and developed recommendations for the provision of quality delivery of online learning to diverse students. The second phase analyzed college policies in relation to the online learner, the creation of generic policy recommendations and samples, and specific work within self-selected colleges to revise policies to ensure equity in services for the online learner. The eToolkit and reports are available on the eCampusAlberta website.
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