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NEWeconomy

EIGHTH EDITION

COLLEGE

RESEARCH

THE PRACTICE OF INNOVATION

When a student enrolls in a college or institute, a university-college, a polytechnic or a cégep, they expect a high quality education, with advanced and timely curricula that prepares them for their career of choice. The value of a post-secondary education and the ability to utilize advanced skills in the workplace is enhanced by the applied research undertaken by an institution. By acting as the incubating venue for ideas to grow from concept to fruition, colleges, institutes, university-colleges, polytechnics, and cégeps instill in their students an appreciation of the value, necessity, and practice of innovation.

One focus of Canada's Science and Technology Agenda is the generation of commercial concepts from discovery research, or research conducted solely to expand human knowledge. Another focus is applied research which is conducted to explore practical uses and commercial opportunities; opportunities that mean economic diversification, growth, and employment. Partnering strategically with businesses, Canada's 150 colleges, institutes, university-colleges, polytechnics, and cégeps are frontline

James Knight

President & CEO
Association of Canadian Community Colleges

players in responding to the changing technological and advanced skills requirements of the 21st century marketplace. By focusing research on product development, prototyping, business incubation, model simulations and commercialization, these institutions are addressing real-world challenges, and producing the highly-skilled talent needed to apply and sustain innovative practices in the workforce.

A few of the innovative ideas nurtured towards real-life application and practice by colleges and their partners include the development of a functional prototype of an MRI-compatible incubator for neonates; hydraulic prototypes and composite materials for the aerospace and aeronautics sector; hurricane and wind impact mitigation for residential housing; the development of technology to support wave power generation; and, disaster and emergency preparedness and simulation for first responders.

Colleges across the country house centres of excellence and technology transfer that work closely with industry partners in fields such as bio-products,



manufacturing sciences, integrated advanced manufacturing technologies, cold climate innovation, agricultural and biotechnological sciences, aquaculture, sport innovation, boreal research and forestry, sustainable infrastructure, aerospace and aeronautics technology, photonics, plastics, justice, and microelectronics.



"Nova Scotia Community College and Green Power Labs built a foundation for increasing innovation in community energy planning and management and addressing the sustainable development needs of the communities." Dr. Alexandre Pavloski, President, Green Power Labs.

"This is an important research initiative for us, and we saw in Fanshawe

College the perfect partner to help us investigate some of the big questions we need to answer about solar energy.” **London Hydro.**

“Northern Alberta Institute of Technology (NAIT) provided mechanical drawings and machined a new device that measures bacteria in drinking water and food, not in days but in minutes. That brought Aqua Screen to the stage where it was ready for testing. The company (...) is about six months away from getting the bacteria-testing device to water treatment facilities and food processing plants for use. Our early testing is looking very promising and we’re attracting interest from some very excited partners. The question is, can we develop world-leading technology here in Alberta? And the answer is, yeah.”

Aqua Screen, Edmonton.

“We had already worked with Niagara College on another highly successful technical project. The company expects to use the developed technology to access the high end display market. It would not have been able to complete

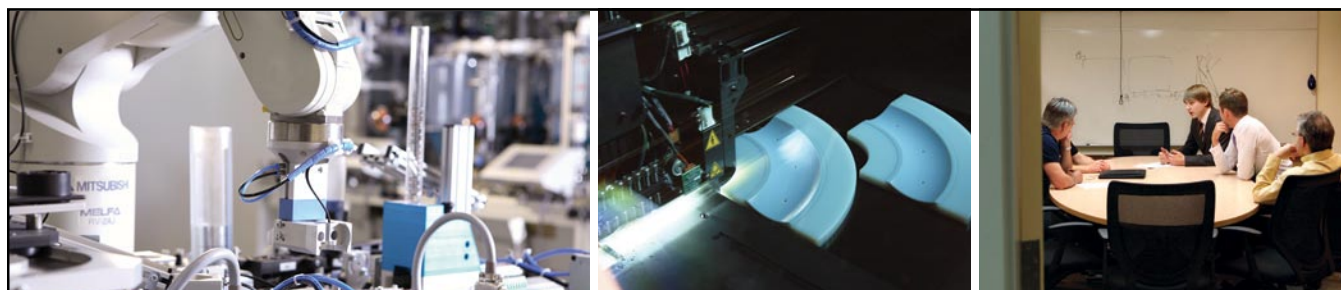
the project without Niagara College’s assistance.” **Richard Wood, President, Matcor Technologies Inc.**

“ADL will spend close to \$1.5 million over the next two years to employ reverse osmosis to capture and concentrate [high protein] waste by-product. Canada’s Smartest Kitchen (at Holland College) will work with us to help in product prototype development, proof of concept phases, product testing and evaluation and assist us in creation of new product formulations for a variety of our target markets...” **Amalgamated Dairies Ltd.**

“We collaborated on the design of a number of projects with Fleming College’s Centre for Alternative Wastewater Treatment over the last couple of years (...). The striking difference between this collaboration and our earlier innovative projects is that the projects with CAWT are being thoroughly tested and adjusted such that we have valuable and meaningful data to use for the improved future designs.” **Rivercourt Engineering Inc.**

With such successes and qualitative

results, how can the applied research role of Canada’s colleges, institutes, university-colleges, polytechnics, and cégeps achieve more recognition from the public and funding agencies? The answer lies in increased awareness. The countless SME’s with close ties to local colleges must make it known to federal officials and agencies their success is dependent on these institutions. Unfortunately, colleges and institutes have reached a critical juncture. More students than ever are enrolling for high quality, innovative education. Yet, these institutions are already operating at full capacity using all available resources. At the same time, they are pressured by research partners, students, and communities to further expand support to innovation. With additional resources, colleges and institutes could reach a turning point where momentum in applied research and innovation becomes self-sustaining, fuelling economic growth while increasing Canada’s productivity.



AN ENVIRONMENT for innovation

novaNAIT: it’s our way of helping innovators and entrepreneurs turn their ideas into commercial success. This centre for applied research and technology transfer is a supportive environment that provides:

- incubation facilities and business support services
- prototype development and manufacturing solutions
- access to applied research opportunities
- intellectual property management
- assistance with applications for grants, patents and licensing.




novaNAIT

APPLIED RESEARCH AND TECHNOLOGY TRANSFER

Learn how novaNAIT can assist you:

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“There are 2,000 health care transactions in Canada every minute.”

MOHAWK COLLEGE TAKES LEADERSHIP ROLE ON NATIONAL ELECTRONIC HEALTH RECORD SYSTEM

A team of students, graduates and faculty at Mohawk College in Hamilton, Ontario is working on an applied research project to run all of those transactions online.

Together with a dozen industry partners and with funding from the Natural Sciences and Engineering Research Council of Canada, Mohawk is building and testing the software solution that will allow medical information to be securely stored, shared and accessed online. The national electronic health records (EHR) system would link health care providers coast to coast and replace the current patchwork of paper files, prescription forms and requisition slips.

Digitized health records hold the promise of improving patient care and reducing costs, contributing to a more sustainable health care system.

A select group of students from Mohawk's three-year Software Engineering / Development program work on the applied research project in the College's EHR Lab while two recent graduates serve as main software developers. Three Mohawk professors, seconded to the project part-time, serve as technical leaders and liaisons with the students, graduates and industry partners.

*“Our Electronic Health Records project is powered by some remarkable students and new graduates,” says **Brian Minaji**, one of the three Mohawk College faculty working on the EHR project. “Our students are directly applying what we’re they’re learning in our labs and classrooms to make a real contribution on a project of national scope and significance.”*

*The applied research project gives students and graduates a competitive edge in the emerging field of health informatics, where information science, computer science, and health care intersect. “The Electronic Health Records project has been a great experience,” says **Mohawk graduate and software developer Trevor Davis**.*

“I’m working on real-world problems and coming up with innovative solutions for our health care system. That knowledge combined with direct involvement in an evolving industry has given a huge boost to my future career.”

On the strength of the team's work to date, the Natural Sciences and Engineering

Research Council of Canada is investing \$2.3 million over five years in Mohawk's EHR Project -- the largest research grant in the College's history. Mohawk is also ramping up another applied research project focused on energy technology and smart grids.

*To oversee applied research projects, strengthen industry partnerships and foster a college-wide culture of innovation, Ted Scott was appointed Mohawk's first Chief Innovation Officer in July. Scott, an award-winning researcher and professor in ultrasound imaging, previously served as the College's Director of Applied Research and Innovation. “At Mohawk, innovation is all about finding new and better ways to add value for our students and our College partners,” says **Scott**. “One of the ways we’ll do that is by putting our students and staff to work on real-world applied research projects.”*

Innovation, together with quality and sustainability, are Mohawk's three strategic priorities. Mohawk President Rob MacIsaac says the strategic focus on quality, innovation and sustainability plays to the College's strengths and builds on Mohawk's well-earned reputation for academic excellence. “At Mohawk, we're committed to delivering a quality education and bringing students, staff and college partners together to come up with innovative and sustainable solutions for our economy and our community.”

For more on innovation and applied research at Mohawk College, contact Ted Scott, Chief Innovation Officer, at ted.scott@mohawkcollege.ca.

MOHAWK

COLLEGE OF APPLIED ARTS AND TECHNOLOGY

Generating ECONOMIC FUTURES! APPLIED RESEARCH & INNOVATION

- Mohawk recognizes that national solutions to the challenges of economic development, prosperity, productivity, and global competitiveness are intricately linked through the potential of applying innovation to problem solving.
- Mohawk graduates enter the workforce with a solid understanding that they can play a leadership role in applying or diffusing innovation, and will be known for their ability to contribute to a company's skills and innovation capacity.
- Mohawk is now building on current efforts in applied research, engaging more students and staff in partnerships with business, industry, community organizations, and governments.
- Mohawk is currently developing the 1st working prototype of Canada's national electronic health record, together with private and public sector partners, including Canada Health Infoway, Canada institute for Health Information, small-medium local enterprises and several multinational companies.
- Chief Innovation Officer Ted Scott Ted Scott is conducting research aimed at improving the detection rate of prenatal congenital heart defects at the Institute for Applied Health Sciences.
- Mohawk is researching factors affecting student persistence and graduation, working with Confederation and Seneca College on 'Foundations for Success', funded by the Canadian Millennium Scholarship Foundation and the Ontario Ministry of Training, Colleges and Universities.
- The number of allied health science professionals is insufficient to meet the national needs. Mohawk is researching the link between shortages, burnout and patient dissatisfaction; simulation-enhanced learning may be a solution.
- Mohawk annually serves 10,500 full-time, 4,000 apprenticeship and 325 international students, as well as 5,000 adult learners and 42,000 continuing education registrants.
- Mohawk is a committed member of TRRA (Toronto Region Research Alliance).

