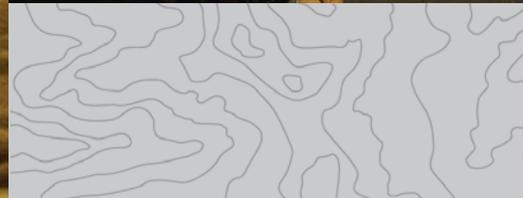




Centre for Northern Innovation in Mining



Welcome to the Centre for Northern Innovation in Mining

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Executive Director's Message

Welcome to Yukon College's Centre for Northern Innovation in Mining. We're proud to introduce this exciting initiative.

The Centre for Northern Innovation in Mining (CNIM) is very much the product of close co-operation and dialogue among the mining industry, government, First Nations and Yukon College. We recognize that to sustain economic growth and prosperity, the mining industry needs the best technology, the most innovative methods and a highly skilled workforce.

CNIM offers a variety of services for Yukon's mineral resources industry, from training to increase the number of locally available workers to cutting-edge research and innovation through the Yukon Research Centre.

We're proud of our proven commitment to partnership development. We recognize and welcome expanded opportunities for co-operative training ventures. Industry-directed and industry-driven, CNIM tailors its programming to reflect the priorities and practices of its partners.

Skills training has been at the heart of Yukon College programming for 50 years. CNIM's commitment to training skilled workers shows that it will remain a vital aspect of the College for years to come.

Shelagh Rowles
Executive Director, Centre for Northern Innovation in Mining

*In its first five years
CNIM is expected to
teach hundreds of
skilled labourers.*

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GBPCreative.ca – page 6

Greg Martin – front cover, page 5, 9, 14

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Preparing Yukon Workers for Tomorrow and Today



About the Centre for Northern Innovation in Mining

The Centre for Northern Innovation in Mining (CNIM) is Yukon College's state-of-the-art facility in Whitehorse, Yukon, providing education, training and research in one location.

Founded and developed in close co-operation with the mining industry, CNIM has tailored its programming to meet the employment and research needs of resource companies.

CNIM can provide services to industry and training for students that are unique in the country, thanks to sophisticated facilities, mobile classrooms and high-tech simulators. The centre's close access to working mine sites and to reclamation and mineral exploration areas give students real-world experience.

The training offered by CNIM allows Yukon residents — and those who want to study or work in Yukon — access to a variety of learning opportunities. These are nationally recognized and are customized for the North.

CNIM, through the Yukon Research Centre, conducts applied research to increase and improve the competitiveness and environmental sustainability of Yukon's mining sector.

This document provides an overview of CNIM. For more detailed information, visit the College's website (www.yukoncollege.yk.ca/cnim) or contact the centre directly.

CNIM is a comprehensive centre that provides multifaceted, industry-driven training and research. The goal is to develop a sustainable mining industry in Yukon with a highly skilled local workforce.

TIMELINE

- January 2011 • Yukon College launches the Field Camp Assistant and Camp Manager programs to train students for mining exploration.
- August 2012 • The Mineral Resource program begins at Yukon College.
- November 2012 • The CNIM governing council is established, including representatives from Yukon's operating mines, First Nation governments, Yukon government and Yukon College.
- January 2013 • Introduction to Mining Operations, the first program delivered under CNIM, begins.
- April 2013 • A four-month pre-employment course for heavy equipment operators is held in Pelly Crossing.
- August 2013 • Prime Minister Stephen Harper announces an investment of \$5.6 million by the federal government in the project.
- October 2013 • Yukon Premier Darrell Pasloski announces \$5.6 million in capital funding, plus an additional \$5.9 million to support programming across the next five years.
- December 2013 • CNIM's mobile trades training trailer begins operation.
- January 2014 • The first mine-related dual credit program, Pre-Employment Welding, is delivered in Dawson City with the mobile trailer.

The first CNIM Underground Mining course is held at the training facility in Delta Junction, Alaska. Later that month, the first Surface Mining course is also held at Delta Junction.
- May 2015 (projected) • Construction begins on the expanded CNIM industrial trades facility at Yukon College.
- January 2017 (projected) • Construction completed.



Yukon Mine Training Association

Through the Yukon Mine Training Association (YMTA), First Nation students are offered life skills training and career and personal planning to help them succeed.

The YMTA works with industry to maximize First Nation clients' access to jobs and educates the public about opportunities in the sector.

Contact YMTA to learn more about the benefits available to employers, such as the association's wage and training subsidies for participants in the Mining Transitions program, and how YMTA can help meet staffing needs.

Find out more about the YMTA on their website: www.ymta.org.

Through the outreach and services provided by CNIM and its partner, YMTA, students have a clearly defined route to rewarding employment.

Bringing Training Home to Yukoners



Mobile Training

Comprehensive trades training is now possible anywhere in Yukon that is accessible by road.

CNIM's mobile trades training trailer and Cybermine training simulators allow Yukon College to deliver trades courses in smaller communities across the territory and at operating mine sites.

The mobile trades training trailer can accommodate 10–25 students per session, depending on the course being taught. Most courses last 16–20 weeks.

CNIM's Cybermine training simulators bring cutting-edge technology to classroom instruction — anywhere in Yukon. The simulators include surface and underground training modules, so students can learn how to operate complex and expensive equipment safely, under the guidance of experienced instructors.

Contract courses are also available on site to communities or mine operators. These courses can lead to entry-level employment or provide professional development for those already working in the mining industry.

CNIM can provide contract training for various and diverse industrial skills, from haul truck operator to rigging to WHMIS safety certification.

Mineral resource companies, associated industries and Yukon community development organizations can find out more about mobile trades programs and contract courses through the website.

The \$1.6 million trailer provides more than 300 square metres (1,000 square feet) of instructional space. It is outfitted for classes in welding, electrical work, millwrighting and pipefitting. An on-board diesel generator provides power for heating, lighting, equipment and wireless internet.

For more than 50 years, Yukon College has been preparing the workers of tomorrow.

SIMULATORS

CNIM can bring these simulators to your community or mine site:

<i>Simulator:</i>	<i>Based on:</i>
Excavator	Komatsu PC1250 variant
Haul Truck	Caterpillar 773F variant
Surface Mining Grader	Caterpillar 140H variant
Surface Mining Dozer	Caterpillar D10 variant
Underground Mining Articulated Dump Truck	Toro 40D variant
Drill Rig	Sandvik DD420 variant
Load Haul Dumper	Toro 007 variant
Surface Mining Loader	Caterpillar 992 series variant
On-Highway Tractor Trailer	MAN truck variant



Safety

Students in all mine-related programs and trades training must demonstrate knowledge of Yukon occupational health and safety standards.

They learn how to identify common hazards in the workplace, properly use protective equipment and assess issues related to air safety and hazardous materials.

All graduates must obtain Red Cross Standard First Aid certification, provided through Yukon College.

Practical Training. Real Experience. Work Ready.



Introduction to Underground Mining

Mineral resource companies need workers who can come into an operation, work thoughtfully and safely, be productive immediately and understand the mining process and their role in it.

Introduction to Underground Mining is designed to prepare those workers.

After two weeks of classroom training in Whitehorse, students spend four weeks of applied training.

The program also follows the work cycle of a typical mine. Students work two weeks of 10-hour shifts, followed by two weeks off, followed by two more weeks of intensive training. Students experience work camp life and learn underground mine safety, the mining process and how to operate mine equipment.

At the end of the program students are well placed for entry-level employment in an operating mine.

Find out more about the Introduction to Underground Mining program on Yukon College's website.

Training includes:

- introduction to underground mining
- the regulatory framework
- introduction to the work environment
- muck handling
- manual drilling
- rigging and staging
- mine utilities
- ground control (scaling)
- mine maps and ventilation
- work practices
- simulator training
- operation of load haul dumper and underground haul truck
- hands-on practical exams

Heavy Equipment Operator Training

CNIM can configure its Heavy Equipment Operator training in a number of ways to best suit people's needs. The time, place, duration and focus of the program can be tailored to a particular client and/or employee.

Here's one example.

Using simulators and equipment at an actual work site, the Haul Truck Operator training course provides practical, hands-on experience for students. Students begin in Whitehorse with a safety orientation, life skills support and introduction to the Cybermine simulators. The high-tech simulators teach students to handle heavy machinery safely, under the guidance of experienced instructors.

A two-week skills training shift then allows students to practise with actual machines. Instructors train students at a loading and hauling area at the mine site, where students can practise the fundamentals of equipment operation in a safe and monitored environment.

Call to find out how the Heavy Equipment Operator training can be customized to your needs.

"The greatest challenge we face in hiring locally is the scarcity of available skilled workers in Yukon.

We have collectively designed this program to develop entry-level skills for Yukoners, which we hope will increase the number of qualified local candidates."

Brad Thrall, Chief Operating Officer, Alexco Resource Corp.



Practical Training. Real Experience. Work Ready.



With its close ties to the local mining industry, Yukon College offers a fantastic opportunity to train mineral resource workers.

Mineral Resources Program

The Mineral Resources program introduces students to the real world of mineral resource exploration, analysis and development. It prepares students for a dynamic, well-paid career.

In the one-year program, students receive a certificate that proves they have a solid foundation for work as technicians in the mineral exploration industry. Graduates of the two-year diploma program gain a greater extent of knowledge and experience for career opportunities as a mineral resource technologist.

Students graduate with on-the-ground experience at Yukon mines, exploration projects and remediation sites.

Find out more about the Mineral Resources program on CNIM's website.

Courses include:

- Mineralogy and Petrology
- Geomorphology
- Exploration and Mine Safety
- Introductory and Intermediate Geology Field Schools

"Many of us discover this career by chance... having this educational opportunity at the College enables (students) to enhance their career prospects without leaving the territory."

Mike Burke, Chief Geologist at Golden Predator Corp.



Apprenticeship Programs

CNIM helps to smooth the transition from apprentice to journeyman through innovative partnerships with industry. These are aimed at developing the workforce that industry needs.

CNIM will act as an employer and a sponsor for apprentices enrolled in some programs. This allows students to maintain their apprentice status while pursuing full-time studies at the College.

This initiative is currently under development. Call to find out how CNIM can work with you to provide your apprentices with on-the-job training and work experience.

Let CNIM provide the first opportunity for potential apprentices.



Where Science and Industry Meet

Yukon Research Centre

CNIM works closely with the Yukon Research Centre (YRC) at Yukon College to address specific northern challenges and opportunities in the mining industry.

YRC's research staff create a multi-disciplinary and innovative, co-operative working environment. The Centre engages a wide range of experts in a number of fields of study.

With growing on-the-ground expertise, a modern laboratory facility in Whitehorse and close co-operative work with other institutions, the YRC has access to some of the best and brightest minds in applied northern research.

Applied research means working collaboratively with industry and developing local capacity and expertise to support community and economic development, training and education.

The goal is to help develop new and better practices that make mining sustainable, foster innovation and train highly qualified personnel.

Contact Yukon College to discuss the potential for applied research projects. www.yukoncollege.yk.ca/research

"The best thing for me about working here has been the opportunity to work in the field and really engage with what we learn about in school."

Sarah Newton,
Research Assistant,
Yukon Research
Centre

CNIM is more than mine training.





Research Projects

Here are some of the projects underway at YRC. Find out more about these projects on the YRC website: www.yukoncollege.yk.ca/research.

Mine Technology, Adaptation and Innovation

Mining and Transportation Sectors Adapting to Climate Change (Northern Climate ExChange)

Fine Gold Gravity Concentrate Upgrading Research (Cold Climate Innovation)

Drilling Hot Water Supply Heater and Pump (Cold Climate Innovation)

Borehole Drill Advancements (Cold Climate Innovation)

Industrial Environment Restoration and Reclamation

Assessment of innovative bioreactor substrate and nutrients for heavy metals removal (Natural Sciences and Engineering Research Council/NSERC Industrial Research Chairs for Colleges/IRCC)

Technology development for limitation of the contaminant build-up in recycled process water (NSERC IRCC)

Research Into the Use of Biochar in Yukon Mine Reclamation (NSERC Engage)

Development of a Bioengineered Soil Medium for Remediation of Hydrocarbon contaminated Soils (Cold Climate Innovation)

Investigation of the Effectiveness of Locally Produced Biochar on Mine Remediation (Cold Climate Innovation)

Guided by Industry, for Industry

CNIM's Governing Council

The Governing Council's expert advice helps CNIM determine what training is needed, how best to provide that training and what resources are available in the industry to help make it happen.

The Council — which has a majority of industry members — meets quarterly to review plans and establish budgets and priorities.

Find out more about the Governing Council on CNIM's website.

CNIM relies on the Governing Council to help match training with jobs and opportunities.





Practical experience with high-tech flair

Mining continues to be of utmost importance to the Yukon economy, more than 100 years after the Klondike Gold Rush.

Yukon College's Centre for Northern Innovation in Mining ensures that we benefit from the opportunities created by industrial development in the North.



YukonCollege

Centre for Northern Innovation in Mining

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Practical Training. Real Experience. Work Ready.