

Mining Engineers: Global Citizens

B.C. students prepare to lead the global mining industry.

By Carmen Jensen and AJ Gunson

The University of British Columbia's Norman B. Keevil Institute of Mining Engineering (NBKI) is one of North America's largest and most advanced centres for mining engineering education and research. Diverse research strengths include rock mechanics, underground bulk mining, surface chemistry, operations, automation and virtual intelligence, integrated mining and process systems, energy efficient comminution technologies, flotation and mining automation.

The NBKI is a global leader in multidisciplinary research in such areas as mining and sustainability, mining and communities, and mining and Aboriginal communities. This environment fosters the development of the effective and ethical leadership, teamwork, networking and interpersonal skills that are the hallmark of a global mining professional.

The NBKI offers a unique and innovative Master of Engineering Program in Mining Engineering, providing a world-class professional development program akin to an MBA. Students learn state-of-the-art mining technology, theory and practice in one of the world's leading mining departments, study with classmates from across Canada and around the world, are immersed in a western educational and industrial culture, and gain work experience with a wide range of companies in the mining sector. Admission is capped at 20 students per year, to ensure an intimate and interactive learning environment.

Students arriving from every corner of the world enter a month-long orientation program at the beginning of August, which consists of a series of short courses, online courses and field trips. The short courses are instructed by the department's dedicated and dynamic faculty members, presenting in their fields of expertise. Students also participate in sessions on business etiquette, leadership and team-building. Throughout the orientation program, students complete several online courses, hosted by NBKI's partner, EduMine. For example, after studying mine closure and acid rock drainage, the students visit the Britannia Mine Museum and EPCOR Britannia Mine Water Treatment Plant to see a real world example of how the skills developed during the program can be put to good use. The next stage of the orientation program is an extensive field trip to several major mining operations in B.C. In 2011, the cohort visited the New Afton copper-gold project, the Highland Valley

Students on the Copper Mountain Field Trip. Photo credit: AJ Gunson.



copper mine, the Trail Smelter and the Fording River metallurgical coal mine.

During tours of several Vancouver-based mining companies' offices, students begin networking with industry contacts. At the end of the orientation period, students are required to complete a presentation and report which reflects what they have learned during the orientation month. August closes with a welcome dinner, which brings the new Master of Engineering students together with faculty and industry representatives. The orientation period is an intensive and challenging experience that forms the foundation of lasting friendships and professional connections.

In September, students begin the first of three terms of coursework. Typically students complete two academic terms of coursework (eight months), a co-op work term (eight months), and a final academic term (four months) during which they complete their industry project. Some students choose to forgo the co-op option in favour of finishing the program in 13 months. There is an opportunity to specialize in one of four academic areas: mining, mineral processing, environment and sustainability, and management and finance.

In the spring, there is a second major field trip to several significant mining operations in Northern and Western Canada. In 2011, the students visited the Diavik diamond mine, Suncor's oil sands facilities, the Lanigan potash mine and the Rabbit Lake uranium mine.

Through the UBC Engineering Co-op Program, a student's academic program is formally integrated with constructive, relevant, paid technical engineering work with approved industry organizations. This is an invaluable opportunity, as it helps students gain work experience and contacts within the mining industry. Prior to their co-op terms, students complete a series of online and in-person



workshops that help them prepare their resume and cover letter, and hone their interview skills.

The NBKI has recently been able to significantly renovate and improve its facilities thanks in part to a generous grant of \$15 million in capital development from industry and the BC government in 2006. Strong alumni loyalty and involvement also create lasting bonds to industry and the community.

While most co-op locations are found throughout Canada, students have obtained placements as far away as Australia and South America. Salaries generally range from \$3,000 to \$6,000 a month. Since the introduction of the co-op option in 2007, the NBKI Master of Engineering program has achieved a 100 per cent placement record for students wishing to participate

in the program. Our co-op partners have included Alex G. Doll Consulting, Barkerville Gold, Barrick Gold, Breakwater Resources, Cameco, CLIFFS, Cominco Engineering Services, Copper Mountain Mining, Golder Associates, Grande Cache Coal, Imperial Metals, Imperial Oil, Inmet, Kemetco Research, Kerr Wood Leidal Assoc, LNH Technologies, Metso, New Gold, Northgate Minerals, Pan American Silver, Rio Tinto, Selwyn, Suncor, Syncrude, Taseko, Teck, Tetra Tech, Vale Inco, and Yukon Zinc. **M**

The Master of Engineering Program begins accepting applications for 2012 on September 26, 2011. For more information, visit www.mining.ubc.ca. You may also contact the Program Manager, Carmen Jensen at carmen@mining.ubc.ca.

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