

## A COLLABORATIVE ROLE FOR A MINING SCHOOL: LIFELONG LEARNING IN THE MINING INDUSTRY

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### Abstract

This contribution examines the motivation and prospects for mining companies to become Learning Organizations and integrate Lifelong Learning into their culture. Mining Schools have a potentially central role to play in developing Learning systems for access by industry.

Reference is made to initiatives to develop a system that is based on collaboration between UBC, Edumine and the Canadian Institute of Mining, Metallurgy and Petroleum. Recent experiences with this model are reviewed.

### Value of a Mining School

The health, reputation, image and influence of a Mining School is determined by its value, as well as by the effectiveness of its “marketing”. Value can be judged from three perspectives (University, Industry and Society).

The value of a Mining School to Industry can be judged in terms of the strength of its academic support through five pillars (in decreasing order of importance):

#### 1. *Educating highly qualified people*

Industry needs Mining graduates as the next generation of leaders to build and maintain its business operations. They carry the commitment and awareness gained from the accredited education, industrial experience and motivation generated through their degree. The graduate invariably will integrate and lead an interdisciplinary team in the workplace.

Schools depend upon industry to maintain consistent support, advice, recruitment and Engineer-in-Training programs. This needs to be more than simply evident in an annual visit with an expectation of being able to meet recruitment needs. Industry Advisory Committees are very useful mechanisms to ensure that more constructive interaction and mutual understanding exists between School and industry.

#### 2. *Technology and research*

The Mining Industry has historically not realized the full potential of Mining Schools for either tactical or strategic research. Schools also have a capacity to build research teams with other disciplines within the University and other networks.

Success in research should enable Schools to maintain a healthy environment in terms of growth in expertise, facilities and staff, to the benefit of both postgraduate and undergraduate student populations. Master’s and PhD graduates offer significant expertise and experience that often goes unrecognized by potential industry employers.

#### 3. *Lifelong Learning*

The impending human resources shortage and the rising need for technological skills make it critical that industry develops access to Lifelong Learning systems for upgrading and cross-training its current and future employees.

#### 4. *Mining community support*

Mining is blessed with a very distinctive and valuable community of professionals at the centre of a broader community, with rich traditions. The members of Mining Schools represent important players in developing professional associations and mining communities, for example, the CIM and SME would be hard pressed without such support.

#### 5. *Independent professional support*

A minor though often important role is helping to resolve mining, health and policy issues, based on sound scientific expertise and expert opinion.

The value of a Mining School is determined by the strength and stability of these five pillars in ensuring a balanced resource of expertise, knowledge and practical functionality.

## **Contributing to Lifelong Learning**

In Canada in 2002 the National Roundtable on Innovation and Skills in the Natural Resource Sectors anticipated the following issues: "the labour force growth will slow; skill requirements will keep rising; and there will be a growing gap between demand and supply of labour market entrants with post-secondary education." At the same time there is an impending shortfall in mining professionals: geologists, mineral processors, mining engineers, metallurgists in particular. Some see a consequence that many professionals in mining will be drawn from other disciplines in the future and will require cross-training. The existing professionals will also require continuing education to keep pace with the evolution in both technology and practices. The concept of Lifelong Learning and the transformation of companies into Learning Organizations will find increasing relevance and application in achieving competitiveness and sustainability.

With the industry in a lean state and moving into an expansion mode, mining professionals have little time to spare for continuing education and cross-training. Continuing education programs need to deliver at the mine site or minimize the requirement for time away from the job.

## **UBC Certificate in Mining Studies**

A Lifelong Learning model for the mining industry has been developed in Canada: the University of British Columbia (UBC) Certificate in Mining Studies. This has been developed jointly by collaboration between UBC<sup>1</sup>, the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) and EduMine<sup>2</sup> (the professional development division of InfoMine Inc.). It is a flexible approach, combining online and classroom learning. Qualification for entry into the Certificate is not based upon past education but on demonstrating commitment and success in the online learning component of the model. Certificate students are proving to come from a diverse array of backgrounds and motivation.

The model aims to develop a creative learning program with the integration of the best features of online learning with those of classroom peer review and mentoring, see Figure1.

The UBC Summer Institute in June-July 2005 and beyond is committed to offering annual courses in the following five areas:

- mining methods and planning
- mineral processing

- geotechnical and rock mechanics
- mine-mill management (integration, risk assessment, financial analysis)
- environment, health and safety
- social issues

These Institute courses link to a set of online courses from Edumine that are in the same six areas.

## **Conclusion**

This paper demonstrates one collaborative role for a mining school: proactively addressing the impending human resources issues for industry.

The UBC Certificate initiative has met with encouraging success in the first two years of its operation. Increased industry support will be an important ingredient in the future evolution of the model but indications are strong that the industry recognizes a range of applications to meet important needs for continuing education of mining professionals in specialized topics and cross-training of professionals from other disciplines. The format appears to minimize conflict between learning requirements, job pressures and job requirements. It does provide a resource for mining corporations to enhance their intellectual capital, for example, capable of integration into their EIT (Engineer In Training) programs where appropriate.

The association with CIM presents a model of collaboration that captures synergies for the benefit of the Canadian mining community. The application to skills and training needs in a global mining context is becoming apparent. It appears that more emphasis is required on the provision of courses that are compatible with corporate objectives, and some even complementary to corporate EIT programs. The EduMine site enrollment policy for companies is beginning to provide a vehicle for achieving this. It is recognized that the program can readily be extended by networking and collaboration with mining schools in other mining regions. Each region could bring its own synergies and complementary specialities

It is hoped that this form of model may also have future application in assisting aboriginal peoples to gain capacity in mineral development.

## **References**

- 1 What is the Value of a Mining School? Mining Magazine, London, 2004.
- 2 National Roundtable on Innovation and Skills in the Natural Resources Sectors, NRCan, Ottawa, Oct 2002.
- 3 Scoble, M., 2003. Crisis in Mining Education. Plenary Session, PDAC Annual. Conference, Toronto

<sup>1</sup> [www.mining.ubc.ca](http://www.mining.ubc.ca)

<sup>2</sup> [www.edumine.com](http://www.edumine.com)

# The UBC Certificate in Mining Studies

## Step 1

Begin by applying online at [www.cstudies.ubc.ca/appsci/mining](http://www.cstudies.ubc.ca/appsci/mining) for acceptance into the certificate program.

## Step 2

Enrol online and register for certification at [www.edumine.com](http://www.edumine.com).

## Step 3

Complete online component.

## Step 4

Register for classroom component at UBC Continuing Studies.

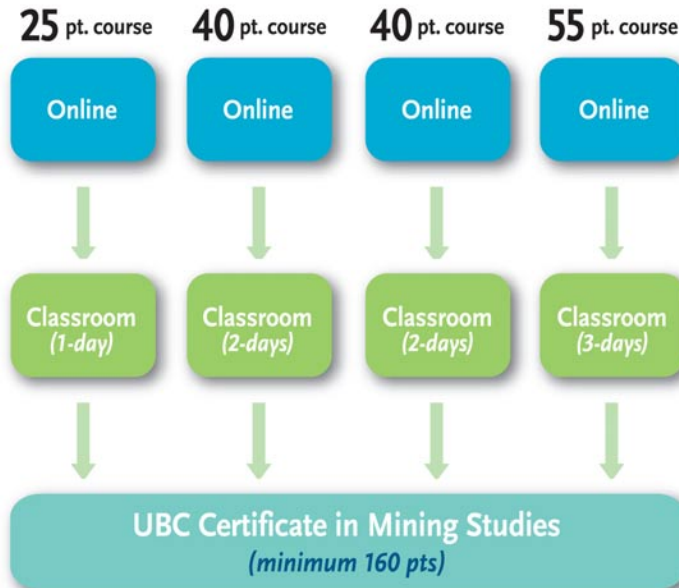
## Step 5

Complete classroom component, including an assigned project and submit for grading.

## Step 6

Apply course points toward UBC Certificate in Mining Studies.

### Example of course points



- Each course is comprised of an online and a classroom component.
- The online component is offered through EduMine; the classroom component is offered on-site at The University of British Columbia. The classroom component includes a project that is completed by the student at a distance in the one month following the end of the classroom component under the supervision of the instructor.
- The point value of each course is determined by the length of the classroom component of the course. A one-day course is worth 25 points, a two-day course is worth 40 points, and a three-day course is worth 55 points. Each year a selection of five to 12 courses is offered.
- Participants must earn a minimum of **160 points** within two years to be awarded the UBC Certificate in Mining Studies.

Figure 1. Schematic of the Learning process: UBC Certificate in Mining Studies