



# Mining Engineering Graduate Programs

Carmen Jensen  
MEng Program



**UNIVERSITY OF BRITISH COLUMBIA**  
NORMAN B. KEEVIL Institute of Mining Engineering

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tel: 604 822 2540 fax: 604 822 5599 517, 6350 Stores Road, Vancouver, BC V6T 1Z4 [www.mining.ubc.ca](http://www.mining.ubc.ca)

# A Mining Engineer: A Global Citizen

*The NBK Institute of Mining Engineering is committed to being a leader in education and research in a new era where mining assumes a more responsive and responsible role in the world.*

*As one of the premier mining schools in the world today, we are developing novel mining and processing methods to address the technical challenges and important social and environmental issues faced by our Industry.*



# A graduate mining engineering degree from UBC open doors to new opportunities for our graduates.



- Learn state of the art mining technology, theory, and practice at a world class university
- Study with classmates from Canada and around the world
- Be immersed in a western educational and industrial culture
- Participate in cutting-edge-research toward the development of advanced, clean, integrated mining systems.
- Get paid work experience with an international company

**UBC consistently ranks within the top 40 global universities.\***

\*Times Higher Education Supplement, Shanghai Jiao Tong University.



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# Canada's Mining Industry

## Leading Resources, By Value of Production: (\$ Billions)

Potash \$5.7

Coal \$5.5

Iron ore \$5.0

Gold \$3.9

Copper \$3.8

Nickel \$3.4

Diamonds \$2.4

Cement \$1.5

Sand & Gravel \$1.5

Stone \$1.4

Zinc \$1.3

Uranium \$1.2



UBCMINING



# The Canadian Mining Industry

- Canada is one of the world's largest exporters of metals and minerals
- ~75% of the world's exploration companies and several major international mining companies are Canadian-based.



# Mining Facts-Canada

“The industry contributed **\$36 billion** to Canada’s gross domestic product in 2010...”

<http://www.mining.ca/site/index.php/en/news-a-media/publications.html>

Mining Association of Canada, Facts & Figures 2011



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# Mining Facts-Canada

“Canada's mining industry plans to invest **\$136 billion** in projects over the next decade”

<http://www.mining.ca/site/index.php/en/news-a-media/publications.html>

Mining Association of Canada, Facts & Figures 2011



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# Mining Facts-Canada

“The industry needs **10,000** new workers each year over the next **decade** to replace current positions and new ones”

<http://www.mining.ca/site/index.php/en/news-a-media/publications.html>

Mining Association of Canada, Facts & Figures 2011



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# Mining Facts-Canada

“The average weekly pay for a Canadian mining worker in 2010 was \$1632, (\$7072 per month or 5550 Euros)”

<http://www.mining.ca/site/index.php/en/news-a-media/publications.html>

Mining Association of Canada, Facts & Figures 2011



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# The NBK Institute of Mining Engineering

## Outstanding Faculty and Academic Instruction



Scott Dunbar **M, F**

Davide Elmo **M**

Mory Ghomshei **ES**

AJ Gunson **MP-ES**

Robert Hall **M**

Michael Hitch **M-ES-F**

Maria Holuszko **MP**

Bern Klein **MP-ES**

Janusz Laskowski **MP**

John Meech **MP-ES**

Dawn Mills **ES**

Marek Pawlik **MP**

Malcolm Scoble **M-ES**

Marcello Veiga **MP-ES**

Dirk van Zyl **M-ES**

**ES** Environment &  
Sustainability  
**F** Finance  
**M** Mining  
**MP** Mineral Processing



# Industry Advisory Committee



**Industry/Research  
Partnerships:**  
Teck, Government  
Research Granting  
Agencies (NSERC)



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# Graduate Programs

- **Research Program:**
  - Master of Applied Science – MASc  
(completion in 2 years, research-based)
  - Doctor of Philosophy – PhD  
(completion in 4 years, research-based;  
admission with a research-based  
master's degree)
- **Professional Masters Program:**
  - Master of Engineering – MEng  
(completion in 21 months, course-based,  
co-op options)

*~109 enrolled in 2012*

*44 MEng, 35 MASc, 30 PhD*

# Research Program Description

Each student has an advisor:

- Mining
- Mineral Processing
- Mine Environment and Sustainability
- Mine Economics and Finance

Master of Applied Science approximate schedule:





# Research Program Funding

## MASc and PhD

- Students typically receive a research salary of \$1,400/month.
- Tuition is about \$7,500/year.
- Students typically receive a scholarship of \$3,200/year.



# Master of Engineering

*The NBK Institute's Master of Engineering mission is to provide a world-class professional development program, preparing students for leading roles within the global mining industry.*



An MEng is a professional development designation, like an MBA.



# MEng Program Description

A 21-month program with specializations in:

- Mining
- Mineral Processing
- Mine Environment and Sustainability
- Mine Economics and Finance



# MEng Program Activities



## Orientation (3 credits)

- Short & Online Courses
- Field Trips
- 3 credit hours

## Coursework (21 credits)

- UBC Coursework

## Co-op Internship

- 8 Month Paid Internship

## Engineering Report (6 credits)

- Industry report





# MEng Fieldtrip August 2012





# MEng Fieldtrip Feb 2012



# Mine Technical Electives

Advanced Rock Fragmentation

Advanced Underground Mining

Applied Underground Rock Mechanics

Energy from the Earth: Renewable Vs. Conventional

Integrated Mining & Processing Systems

Management in Science Methods in Engineering

Mine Economics and Finance

Mine Management

Mineral Resource Development & Canadian First Nations

Mining and Society

Mining Environment Case Studies - Risk Management

Physical Mineral Processes

Processing of Mineral Fines

Processing of Precious Metal Ores

Rock Slope Engineering



# MEng Program Cost

Tuition Fee	~CDN \$5,600 per academic term (3)
Co-op Fee	~CDN \$675 per Co-op term
Activity Fee	CDN \$7,000
Student Fees	~CDN \$1,000
Total	~CDN \$26,000

- Fees are paid in installments over the course of the year.
- Living expenses are \$1200 per month (room and board), less if you are willing to share accommodation.



# Industrial Internships

- Constructive, relative, paid, technical engineering work with approved industry organizations.
- 4 to 8-month internships.
- Salaries from \$3000 to \$7000/ CAD month, average of ~\$4,200/month.
- Interns are often considered for fulltime employment.
- **100%** placement record.



## MEng Internships

Barrick Gold  
CESL Research  
Cliffs Natural Res.  
Golder Associates  
Grande Cache Coal  
Imperial Metals  
Imperial Oil  
Inmet  
Kemetco Research  
Metso  
Myra Falls  
New Gold  
Northgate Minerals  
Pan American Silver  
Rio Tinto  
Suncor Energy Inc.  
Syncrude  
Taseko Mines  
Teck Res. Corp  
Vale Inco  
Waldrop-TetraTech  
Yukon Zinc



# Internships...

Flavio



**Company:** Teck- Highland Valley Copper

**Location:** 3 HR drive from Vancouver, BC

**Salary:** \$4,400 CAD/ month  
Jan to Aug 2011

**Job Description:**  
Geotechnical monitoring  
and core logging.





# Internships...



**Company:** Imperial Metals-Huckleberry Mines Ltd.

**Location:** 2 HR drive from Houston, BC

**Salary:** \$4,024 CAD/ month  
May to Dec 2012

**Job Description:**  
Mineral Processing



# Internships...

**Company:** Teck Coal- Elkview

**Location:** 4 HR drive from  
Calgary, AB

**Salary:** \$4,400 CAD/ month  
Sept 2010- May 2011

**Job Description:** Surveying;  
long-range planning and  
mine design.



# Internships...

Javier



**Company:** Metso Minerals PTI

**Location:** Brisbane, Australia

**Salary:** \$3,800 CAD/ month

June to Dec 2011

**Job Description:** Research on ore characterization and new processing techniques.

Providing support for mining, crushing, grinding and flotation consulting projects.





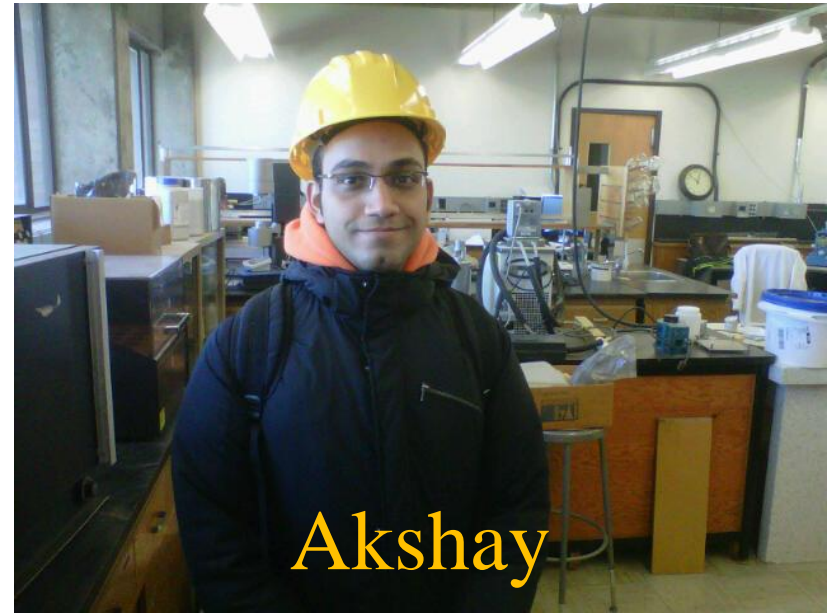
# Internships...

**Company:** Grande Cache Coal

**Location:** 3 HR drive from  
Edmonton, AB

**Salary:** \$5,100 CAD/ month  
Jan to Aug 2011

**Job:** Underground surveying,  
ventilation, ground monitoring &  
rock dust sampling



# Future of Mining Award

- MEng Applicants are welcome to submit a paper on “The Future of Mining.”
- The papers will be judged by a panel of UBC professors.
- The winning paper will receive \$2500 toward student fees (runners up receive \$500).
- Maximum Page Length – 5 pages
- Award Deadline – December 18, 2012 with a complete application package.

## Scholarships

- There are a limited number of scholarships (~\$3000 each) for First Class Standing students.





# Eldorado Gold Overview



Eldorado Gold is a Vancouver-based gold producer with 6 operating mines, 1 mine under construction, 2 development projects and an extensive exploration program, producing over 700,000 oz Au/year.



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eldorado gold

# Eldorado Award

Eldorado Gold will offer several awards to top mining and mineral processing students from Brazil, China, Greece, Romania and Turkey admitted to the UBC Mining MEng Program.

## Award Details:

- An award valued at \$CAN 40,000 for tuition and living expenses
- An offer of an 8-month paid co-op internship
- A strong possibility of an offer of employment after graduation



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# Eldorado Award

## How to Apply:

- Submit the following to the MEng Program by **Dec 10, 2012**:
  - a complete application including all supporting documents
  - resume and cover letter
  - 2 page Essay



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# Essay

The essay must answer the following question:

*“What specialization do you plan on studying and why?”*

- 2 pages
- double-spacing; 1 inch margins
- 12 pt font





# Employment Opportunities

- Canadian Mining Companies working all over the world.
- There is a worldwide shortage of engineers for the mining industry
- Mining is one of the safest industries in Canada
- High salaries - starting salaries range from US \$4,000 to US \$8,000 per month

With a student visa, you can apply to work for 1 to 2 years in Canada after graduation.



# Admission Qualifications

**Bachelor's Degree: 5 year  
Engineering Diploma in:  
Mining, Mineral Processing,  
Metallurgy, Geological, Civil,  
Mechanical, Chemical  
Engineering or Geosciences**



# Grade Requirements

## Grades:

- Applicants from top universities in Greece require 7 on a 10 point scale
- NO GRE
- Good English Language Skills (proficiency test & interview)
- IELTS: 6.5, TOEFL 80



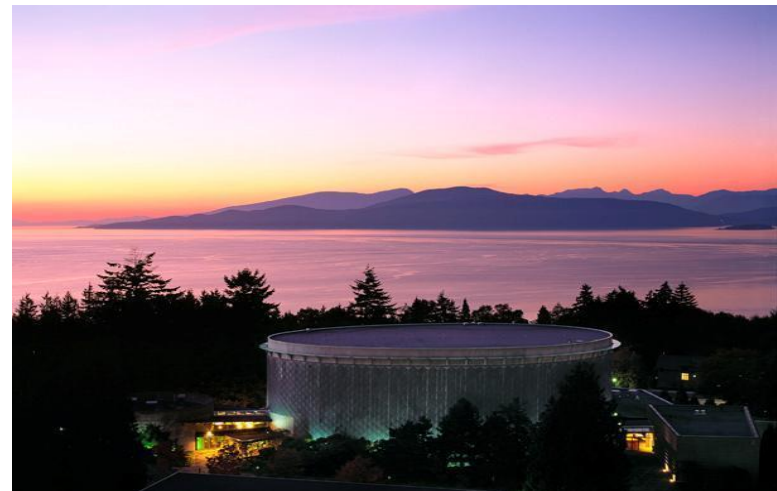
# Application Procedure

To Apply for the **MEng Program:**

- visit: [www.mining.ubc.ca/MEng.html](http://www.mining.ubc.ca/MEng.html)
- email: [meng@mining.ubc.ca](mailto:meng@mining.ubc.ca)
- Application period now open.

To Apply for the **MASc or PhD Program:**

- visit: [www.grad.ubc.ca/](http://www.grad.ubc.ca/)
- email: [info@mining.ubc.ca](mailto:info@mining.ubc.ca)
- Deadline: March 1





# NBK Institute of Mining Engineering

- Buildings & Facilities





# UBC Campus





# UBC Campus





# Vancouver & British Columbia







Please visit us @ [www.mining.ubc.ca](http://www.mining.ubc.ca)