UBC Engineering Co-op Program Core Objectives

Prepare
Provide Engineering Co-op students with professional employment skills to increase confidence and success in the work force.

Liaise
Maintain and strengthen relationships between UBC Engineering Co-op students, employers and the university community through commitment towards excellence in stakeholder relations.

Employ
Facilitate all aspects of the co-op recruitment process. Provide students with the opportunity to explore various career paths by finding and providing relevant, technical and paid engineering co-op work opportunities locally, nationally and internationally.

Counsel
Support and assist UBC Engineering Co-op students in job search activities and co-op work term experiences to ensure meaningful learning outcomes.

Evaluate
Obtain and assess stakeholder feedback to continuously improve upon the operational model, policies, procedures and curriculum of the UBC Engineering Co-op Program.

Team Values
Customer Relations: Deliver a high level of service to all stakeholders.
Integrity: Work ethically and honestly.
Teamwork: Be open, supportive, accountable and professional.
Innovation: Continually strive for and integrate new ideas to enhance program service and delivery.

The Program
The Faculty of Applied Science at the University of British Columbia is home to the largest engineering school and Co-op Program in Western Canada with campuses in Vancouver and the Okanagan. UBC Engineering Co-op students, working towards bachelor and master degrees, alternate academic and co-op work terms to meet degree requirements while earning employment experience.
Director's Message

On behalf of the UBC Engineering Co-op Program team, I am pleased to present the 2007/2008 UBC Engineering Co-op Program Year End Report. I trust you will find the report informative and easy to view the highlights of the program. 2007/2008 was an exciting year whereby we built upon the previous year’s exponential growth with a record high number of 1,483 relevant, technical and paid engineering Co-op work terms, with 9% secured internationally.

The strong Canadian economy was reflected in the dramatic 20% increase of co-op job postings in 2007/2008. We welcomed 529 engineering students, 60% of the second years into the program and bid farewell to 223 students graduating with co-op standing in March 2008. Our graduating students collectively worked in Engineering Co-op terms for 3,836 months and earned $9.6 million in salary over the four-year period.

Over the past five years, a multitude of strategic program initiatives were focused on growth and diversity of services to ensure quality customer service to students and industry representatives; program planning, in-conjunction with the strong economy resulted in a high growth percentage of the program. This year, an external academic review was conducted, recommending we re-evaluate the service levels provided, satisfaction of stakeholders and administration of the program. The external review team, with input from all stakeholders, presented several recommendations, including the revision of the program mission statement and core goals; operational model; and staffing. Over the next year, a concentrated effort will be made to address all areas identified. Our business will evolve around our five new core objectives; we will concentrate on enhancing the efficiencies and effectiveness of the program by streamlining services offered. The external review was a beneficial exercise as it allowed us to take stock and acknowledge our successes and achievements, and closely assess areas for change.

I would like to pay tribute to our professional Engineering Co-op team that provides a quality program to our students, employers and the university community. As Director, I am proud to represent the UBC Engineering Co-op Program at dual campuses and work with a team of dedicated and talented individuals. As you read through our Year End report, you will understand why our motto is “The Right Choice, UBC Engineering Co-op;” I strongly believe in the statement and invite you to participate in the UBC Engineering Co-op Program.

Many thanks for your support and interest in UBC Engineering Co-op. Your input and connectivity helps ensure we continue to provide a valuable service to all involved.

I invite you to learn more by visiting www.ubcengineeringcoop.com. Your feedback, comments, suggestions or questions are warmly welcomed; I can be reached at jenny.kagetsu@ubc.ca or 604-822-6598.

Yours Sincerely,

Jenny Kagetsu
Director, UBC Engineering Co-op Program

Cover photo: courtesy of Melissa Gunn working at Metro Vancouver (formerly GVRD)
Top left photo: courtesy of Claire Jackson working at CANOEC
Bottom left photo: courtesy of Faye Cho working at BC Hydro
Right photo: courtesy of Nicholas Matwyuk working at Canfor - Prince George Pulp & Paper Mills
Program Statistics

During the 2007/2008 academic year, the UBC Engineering Co-op Program exceeded the prior year’s record placement numbers. The program achieved 1,483 four-month Engineering Co-op placements, a 2% increase over the prior year’s placements.

3,161 co-op work term postings were presented to 1,551 eligible UBC Engineering Co-op students: a 2 to 1 ratio of jobs to students. The increase in job-postings is a direct result of a combination of facts, including: a thriving Canadian economy; strong commodity prices in gold and other metals; continuing oil and gas and mining exploration, development and processing opportunities; and infrastructure upgrades and building development in Canada. In addition, international co-op job postings for the program have increased by 72% with 9% of our students in 2007/2008 securing paid, relevant and technical Engineering Co-op positions internationally.

Employment Distribution

In 2007/2008, of the 1,483 UBC Engineering Co-op Program placements, 65% were located in the Lower Mainland, 11% in other British Columbia locations, 15% in other Canadian provinces and territories, and 9% in foreign countries.

90% of all UBC Engineering Co-op placements were made in the private sector, 9% in the public sector and 1% in non-profit organizations.

2007/2008 Student Placement by Sector
2007/2008 Domestic Student Salary Averages

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Total # of Students</th>
<th>Average Salary ($/month)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical and Biological</td>
<td>92</td>
<td>$3,007</td>
</tr>
<tr>
<td>Civil</td>
<td>218</td>
<td>$2,777</td>
</tr>
<tr>
<td>Computer</td>
<td>114</td>
<td>$2,703</td>
</tr>
<tr>
<td>Electrical</td>
<td>213</td>
<td>$2,722</td>
</tr>
<tr>
<td>Environmental</td>
<td>4</td>
<td>$2,715</td>
</tr>
<tr>
<td>Geological</td>
<td>27</td>
<td>$2,731</td>
</tr>
<tr>
<td>Integrated</td>
<td>31</td>
<td>$2,946</td>
</tr>
<tr>
<td>Materials</td>
<td>46</td>
<td>$2,637</td>
</tr>
<tr>
<td>Mechanical</td>
<td>320</td>
<td>$2,770</td>
</tr>
<tr>
<td>Mining</td>
<td>54</td>
<td>$3,332</td>
</tr>
<tr>
<td>Master of Software Systems</td>
<td>11</td>
<td>$3,329</td>
</tr>
<tr>
<td><strong>Overall Average</strong></td>
<td><strong>1,130</strong></td>
<td><strong>$2,879</strong></td>
</tr>
</tbody>
</table>

*Domestic student salary averages are based on available data provided by students. International salary statistics are not included due to variances in co-op program requirements in each country.

Student Salary Averages

In 2007/2008 UBC Engineering Co-op students working in Canada reported average monthly salaries of $2,914, a 3% increase over the past year. The following summary shows domestic salary data for UBC Engineering Co-op placements from all disciplines as provided by 84% of the students.

International Focus

UBC Engineering Co-op students showed great interest in opportunities abroad: in 2007/2008, 9% of all co-op placements were made internationally. 128 international co-op work terms were secured by students in 17 countries. Most international co-op opportunities were based in Australia, Germany, Japan and the United States of America.

2007/2008 International Placements by Country

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of placements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>26</td>
</tr>
<tr>
<td>China</td>
<td>3</td>
</tr>
<tr>
<td>England</td>
<td>2</td>
</tr>
<tr>
<td>Finland</td>
<td>1</td>
</tr>
<tr>
<td>Germany</td>
<td>23</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>12</td>
</tr>
<tr>
<td>Indonesia</td>
<td>2</td>
</tr>
<tr>
<td>Iran</td>
<td>1</td>
</tr>
<tr>
<td>Japan</td>
<td>23</td>
</tr>
<tr>
<td>Lao</td>
<td>1</td>
</tr>
<tr>
<td>Malaysia</td>
<td>2</td>
</tr>
<tr>
<td>Norway</td>
<td>2</td>
</tr>
<tr>
<td>Singapore</td>
<td>7</td>
</tr>
<tr>
<td>Spain</td>
<td>1</td>
</tr>
<tr>
<td>Taiwan</td>
<td>2</td>
</tr>
<tr>
<td>United Arab Emirates</td>
<td>1</td>
</tr>
<tr>
<td>USA</td>
<td>19</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>128</strong></td>
</tr>
</tbody>
</table>
Historical Placements Chemical & Biological Engineering

Chemical and Biological Engineering Co-op students secured 132 four-month co-op work term placements during 2007/2008. The strong resource sector and healthy economic forecasts resulted in a 21% increase in job postings for this discipline over the previous year. 89% of the four-month co-op placements in this discipline were made nationally and 11% internationally including opportunities in Australia, Germany, Indonesia, Japan and the United States of America.

Chemical and Biological Engineering Co-op students had the opportunity to work in the following sectors: energy, mineral processing, mining, metals, oil and gas, pulp and paper, consulting, environmental, biotechnology, research and fuel cells. 27% of co-op placements in this discipline were made in the strong mining and metals refining sectors.

In collaboration with the Department of Chemical & Biological Engineering, the UBC Engineering Co-op Program assisted in the planning and production of the annual third year field trip. Many networking opportunities arose during visits to Canfor’s Northwood Pulp Mill, Gold Bar Wastewater Treatment Plant, Agrium Inc., Shell Canada Ltd., Dow Chemical Company and QSV Biologics Ltd.

The Environmental Engineering Co-op Program, a combined program facilitated through the University of British Columbia and the University of Northern British Columbia, secured nine four-month co-op work terms in 2007/2008. Placements were made in the consulting, government, oil and gas and materials testing industry sectors. These placements are represented in the overall statistics given in the charts on the right.

Civil Engineering

The Civil Engineering Co-op Program continued its strong path with 241 placements during 2007/2008. Commercial building construction in the Lower Mainland, coupled with improving Vancouver area roads and transportation infrastructure (including major projects such as the Sea to Sky Highway and the Canada Line) continued to be two of the major drivers for Civil Engineering Co-op student opportunities this past year. Additionally, students were involved in projects with respect to building restoration, seismic upgrades and the environment such as the Seymour Capilano Water Utilities Project involving the supply of up to 70% of Vancouver’s drinking water. Civil Engineering Co-op students were also involved in preparation for project proposals for upcoming infrastructure work around the Lower Mainland and Fraser Valley.

Consulting companies, including SNC Lavalin, Read Jones Christoffersen and Kerr Wood Leidal, were the largest employers of Civil Engineering Co-op students and collectively provided 122 four-month co-op work term opportunities. The construction industry provided 49 Civil Engineering Co-op opportunities; students worked with notable employers such as PCL Constructors Westcoast Inc., Peter Kiewit Sons’ Inc., and Tyam Construction Ltd. Government offices offered 37 co-op work terms for various departments including traffic, building permits, utilities and waste management. Sixteen Civil Engineering Co-op work terms were accepted internationally, a 129% increase from the previous year. 84% of Civil Engineering Co-op students remained in the Lower Mainland, 4% worked in other parts of the province, and 5% were employed elsewhere in Canada.
Computer Engineering

The Computer Engineering Co-op Program continues to offer a myriad of employment opportunities in the Information and Communication Technology industry. The number of placements grew moderately by 3% over the past year, with students securing 139 Computer Engineering Co-op work term opportunities. Job postings significantly increased during 2007/2008 with 1,824 co-op opportunities compared to 1,241 the previous year; the 47% increase reflected a strong software industry, especially in the Lower Mainland.

Companies that hired Computer Engineering Co-op students were mainly in telecommunications, software development, manufacturing/research and development, finance and academic research. Broadcom Corporation, Business Objects and IBM hired the most students in 2007/2008.

83% of co-op job placements were located in the Lower Mainland, 9% within Canada and the remaining 8% internationally in Hong Kong, Japan and the United States of America.
**Electrical Engineering**

The Electrical Engineering Co-op program successfully secured 260 co-op student work term opportunities in 2007/2008. The Electrical Engineering Undergraduate Program offers three options including biomedical engineering, nanotechnology and microsystems, and electrical energy systems which provide co-op students with the opportunity to apply their specialized theoretical knowledge and practical experience in industry.

There were a total of 1,880 co-op job postings for Electrical Engineering Co-op students, a significant increase of 46% from 1,287 postings the previous year. With a healthy economic outlook in the Information and Communication Technology industry, our Electrical Engineering Co-op students secured technical positions in telecommunications, software development, consulting, research and development and academic research.

Of the 2007/2008 Electrical Engineering Co-op placements, 71% were based in the Lower Mainland, 5% in other areas of B.C., 16% in other Canadian provinces and 8% internationally. Students who worked abroad were based in China, Germany, Hong Kong, Japan and the United States of America.

**Geological Engineering**

The number of Geological Engineering co-op placements continued to grow with a total of 47 four-month co-op work term placements in the 2007/08 academic year, representing a 42% increase. The Geological Engineering Co-op Program currently attracts 40% of all second-year students entering the Geological Engineering discipline.

Due in part to the thriving mining and oil and gas industries our Geological Engineering Co-op students had the opportunity to work with a wide range of employers including construction contractors SRK Consulting and Peter Kiewit Sons’ Inc.; consulting companies such as Klohn Crippen Berger Ltd. and EBA Engineering Consultants Ltd.; and Rio Tinto in the mining industry.

62% of our Geological Engineering Co-op opportunities were on major projects across the Lower Mainland, 16% of the four-month placements were for projects in other B.C. locations, 19% for projects in other Canadian provinces and territories, and 9% in Australia.
Integrated Engineering

The UBC Integrated Engineering Program provides students with a project focused, design-based, interdisciplinary education, with a strong technical foundation. Integrated Engineering Co-op students enter the professional engineering industry with increased team-based and design experience.

Industry has increasingly recognized the fully accredited Integrated Engineering Co-op Program and has sought out co-op students from the program that have completed courses in a variety of engineering disciplines. Integrated Engineering Co-op students secured placements in a diverse range of industries including positions in aviation, biomedical devices, mining equipment maintenance, fuel cells, consulting and reliability engineering. Since the Integrated Engineering Co-op Program commenced in 2004, placements in this discipline have increased, on average, 10% annually.

In 2007/2008, 40 four-month co-op work experiences were secured by Integrated Engineering Co-op students, an 11% increase. 77% of co-op placements were secured in the Lower Mainland, 15% in the rest of B.C., 5% in other Canadian provinces and territories, and 3% in Australia.
Materials Engineering

The Materials Engineering Co-op Program continued its steady growth in the 2007/2008 academic year and attracted 60% of all students entering the Materials Engineering discipline at the second-year level. In the past year, 82 Materials Engineering Co-op placements were secured, bringing the program’s growth to 4% over the past year.

During 2007/2008 Materials Engineering Co-op students secured placements within a variety of industries including mining, metals refining, materials testing and consulting. Materials Engineering Co-op students worked with a long list of accomplished employers including Alcan Inc., Metro Testing Laboratories Ltd., Barrick Gold Corporation, IPSCO Saskatchewan Inc. and Teck Cominco Ltd.

57% of all Materials Engineering Co-op placements were within the Lower Mainland, 11% throughout B.C., 17% in other Canadian provinces and territories, and 15% internationally in Australia, Germany and the United States of America.

Mechanical Engineering

Students in the Mechanical Engineering Co-op program, the largest discipline in the UBC Engineering Co-op Program, obtained 359 placements in 2007/2008.

Mechanical Engineering Co-op students can choose to specialize in biomedical, mechatronics or thermofluids options. Mechatronics Co-op students have a strong background in core mechanical curriculum incorporating courses and projects in embedded electronics, actuators and sensors. Mechanical Engineering Co-op students in the thermofluids option work in the aviation, fuel cell, heating ventilation and air conditioning and processing industries. Mechanical Engineering students in the biomedical option bridge the science of biology and mechanics of engineering.

The continued strong economy provided many opportunities for Mechanical Engineering Co-op students in 2007/2008 with 32% of placements secured in manufacturing/research and development, 19% in consulting, 10% in oil and gas, 7% in mining/metal refining and 6% in the construction industry.

The majority of Mechanical Engineering Co-op work term opportunities were in companies throughout the western provinces of Canada. 70% of the Mechanical Engineering Co-op placements were secured in the Lower Mainland, 12% in other Canadian provinces and territories, 9% across B.C., and 9% internationally. 32 international placements were secured by Mechanical Engineering Co-op students; students worked in Australia, China, Finland, Germany, Japan, Malaysia, Norway, Spain, Taiwan, the United Arab Emirates and the United States of America.
Mining Engineering

The Mining Engineering Co-op Program continued to grow over the last year with students securing 90 co-op work term placements in 2007/2008. This all-time high number of placements brings the Mining Engineering Co-op Program growth to 40% in the last year. The strong mining sector offered increased variety and opportunity for co-op student employment domestically and internationally.

In 2007/2008, Mining Engineering Co-op students worked predominantly in the metals extraction and refining sectors for major companies such as Rio Tinto, Barrick Gold Corporation, Teck Cominco Ltd., Xstrata Plc. and BHP Billiton. Other Mining Engineering Co-op students enjoyed consulting opportunities with companies such as Norwest Corporation, Wardrop Engineering, SMG Consultants and Golder Associates.

The majority of Mining Engineering Co-op students worked in Canada with 12% of placements based in the Lower Mainland, 36% across B.C., and 40% elsewhere in Canada; students also secured 12% of the total Mining Engineering Co-op placements in Australia.
Master of Engineering

The Master of Engineering Co-op Program commenced in 2007/2008; five four-month co-op work terms were secured in the inaugural year. The Master of Engineering program offers engineering graduates the opportunity to accumulate additional knowledge in their area of specialization. Students may choose to specialize in areas such as clinical engineering, civil engineering, electrical engineering or mining engineering.

In 2007/2008 the Master of Engineering Co-op students had either a Computer or Chemical Engineering background and offered employers a strong academic background, research or industry experience and were available for two consecutive four-month co-op work terms.

80% of co-op placements secured by Master of Engineering students were in non-profit organization, while 20% secured work in the private sector.

80% of co-op placements were based in locations across B.C. with 20% centered specifically in the Lower Mainland.

Master of Software Systems

The UBC Engineering Co-op Program facilitates a mandatory four-month co-op work term placement for the Master of Software Systems Degree Program, administered through UBC’s Institute for Computing, Information and Cognitive Systems. Master of Software Systems Co-op students have completed an undergraduate degree in science, engineering or social sciences and are highly sought after senior-level student employees. A majority of Master of Software System Co-op students bring a multidisciplinary approach and international industry experience to the work environment.

In 2007/2008, 19 students enrolled in the program and 100% successfully secured placements primarily in software development, oil and gas, and utilities industry sectors.

74% of the Master of Software Systems placements were based in the Lower Mainland while 26% were based in Alberta.
UBC Okanagan

Students studying engineering at the UBC Okanagan campus enrolled in the UBC Engineering Co-op Program for the first time in 2006/2007. After a year of pre-employment training, presentations from WorkSafeBC, APEGBC and a strongly supported industry reception, 60 co-op work term placements were secured in 2007/2008.

UBC Okanagan Engineering Co-op students were employed in Civil, Electrical and Mechanical Engineering Co-op work term opportunities. The top-five industries that hired UBC Okanagan Engineering Co-op students in 2007/2008 were geotechnical companies such as EBA Engineering Consultants Ltd. and Interior Testing Services Ltd., construction firms such as Maple Reinders Inc., consulting companies like Urban Systems Ltd., hardware development and testing companies such as SkyTrac Systems Ltd., and utilities companies like FortisBC and BC Hydro and Power Authority.

In 2007/2008, 57% of the four-month co-op work terms were completed in the Okanagan Valley, 18% in the Lower Mainland, 15% in other Canadian provinces and territories, and 10% within other regions of B.C.
Employer of the Year

The 2008 UBC Engineering Co-op Employer of the Year Award was presented to Tyam Construction Ltd. for its outstanding support of the UBC Engineering Co-op Program. Tyam commenced business in 1993, continues to grow and now has well over 300 employees with its head office in Langley, B.C.

Tyam has been proactive in its recruiting efforts by posting and hiring with the UBC Engineering Co-op Program since fall 2005. Tyam has provided 31 UBC Engineering Co-op placements with students from civil (24), integrated (1), mechanical (3), materials (1) and electrical (2) engineering. UBC Engineering Co-op students obtained a wide variety of engineering experiences with Tyam.

Mr. Chad Tenney, P.Eng and UBC alumnus, accepted the award for Employer of the Year at the UBC Engineering Co-op Graduation Reception held March 5th, 2008.

Student of the Year

The 2008 UBC Engineering Co-op Student of the Year was awarded to Natalie Silvanovich, an Electrical Engineering Co-op student who joined the program in 2004. She completed all five required co-op work terms. Ms. Silvanovich obtained her first work term at Nokia, second with PMC Sierra Inc. and then relocated to Ontario to work with Research In Motion for three consecutive co-op work terms. She received high praise from her previous employers and was noted for her contributions. A pro-active Co-op student, Ms. Silvanovich also assisted the UBC Engineering Co-op Program by presenting to junior students on her industry experience and providing tips for a successful transition from student to co-op employee. The program extended congratulations to Ms. Silvanovich on her accomplishments at the UBC Engineering Co-op Graduation Reception on March 5th, 2008.

Faculty of the Year

The 2008 UBC Engineering Co-op Faculty Member of the Year was awarded to Professor Malcolm Scoble, Head of the UBC Norman B. Keevil Institute of Mining Engineering. He received his A.C.S.M. in Mining Engineering from the Camborne School of Mines, U.K. in 1966, a Master of Science, Mining Geology and Mineral Exploration from Leicester University, U.K. in 1971, and a PhD from Nottingham University, U.K. in 1981.

Professor Scoble, a strong supporter of the UBC Engineering Co-op Program, has hired 26 students since 1999 at UBC’s Norman B. Keevil Institute of Mining Engineering.

The UBC Engineering Co-op Program acknowledged Professor Scoble’s contributions to the program with an award presentation at the UBC Engineering Co-op Graduation Reception on March 5th, 2008.
Employer Relations

The UBC Engineering Co-op Program hosted three annual events in 2007/2008: UBC Engineering Co-op Junior Student Welcome Receptions at the Vancouver and Kelowna campuses as well as the 2008 UBC Engineering Co-op Graduation Reception. The program recognized and thanked 41 UBC Engineering Co-op employers who supported the events through attendance and monetary or gift sponsorship.

Junior Student Welcome Receptions

We thank the following company representatives who attended the Vancouver campus reception on January 30th, 2008:
AMEC Canada
Blue Castle Games
Business Objects
Cascade Aerospace Inc.
CH2M Hill, Inc.
CJ Anderson & Company
Hatch Ltd.
Hercules Inc.
Klohn-Crippen Berger Ltd.
Knight Piesold Ltd.
Levelton Engineering Ltd.
MacDonald, Dettwiler and Associates Ltd.
Metro Testing Laboratories Ltd.
Orbital Technologies Inc
PCL Constructors Westcoast Inc.
Peter Kiewit Sons’, Inc.
Research in Motion (RIM)
SGS Vancouver
Taseko Mines Limited

We thank the following company representatives who attended the event at our Kelowna campus on January 10th, 2008:
City of Kelowna
CTQ Consultants Ltd.
EBA Engineering Consultants Ltd.
ESS Technology Inc.
FortisBC Inc.
Golder Associates Ltd.
Maple Reinders Constructors Ltd.
Ministry of Transportation
Northern Airborne Technology Ltd.
Opus Hamilton
Technology Brewing Corporation
Urban Systems Limited
WAVETEQ Communications Inc.

The 2008 Graduation Dinner

We thank the 11 companies who generously sponsored this event:

$2,500 Sponsor
Hatch Ltd.
Metro Vancouver
TYAM Construction Ltd.

$1,400 Sponsor
SNC Lavalin
Vale Inco

$700 Sponsor
Fransen Engineering Ltd.
MRL Testing Laboratories Ltd.
NBK Institute of Mining Engineering
Peter Kiewit Sons’, Inc.
Teck Cominco Limited
ThreeWave Software Inc.
UBC Integrated Engineering Program