


 THE  
 UNIVERSITY OF  
 BRITISH  
 COLUMBIA

# ingenuity

 Faculty of Applied Science  
 Engineering News

## Moving at the speed of light

### INSIDE:

- Message from the Dean
- Raising the profile of mechanical engineering
- Research powerhouse wins again
- Who owns the invention
- Faculty development
- New Power Engineering Option
- \$7.5 million from B.C. Government
- Engineering alumni at UBC
- Ken Finch succeeds in business
- Biomedical Engineering receives boost
- Mining alumni triple investment
- UBCO School of Engineering update
- Faculty responds to student needs
- Changes in leadership
- Retirements
- Appointments
- Achievements
- *Fueling Our Future*

### Optical processing—the next big computer breakthrough

By Karin Wilson

In Jonathan Holzman's world nothing is so enticing as optics—especially the prospect of applying that technology to arguably one of the world's most useful devices—the computer.

The assistant professor specializing in micro-optical engineering in UBC Okanagan's School of Engineering revels in tools that make his life easier, and right now that happens to be a software program that allows him to speak directly into his computer—avoiding his keyboard all together.

Only problem is, the keyboard itself is still a bit sluggish. That's because while our technological world is spinning at the speed of light, information nearly comes to a crashing halt once it collides with our electronically limited computers.

But Holzman believes he now holds the key to the next big computer breakthrough. His research is poised to essentially eliminate the micro-chips we've come to know and love, and replace them with optical systems capable of transmitting information in the blink of an eye.

"We're talking about creating optical computers where the information travels from laser beams using light-travelling guides," he says from his office on the Okanagan campus. "Fibre-optics revolutionized communications. In the 1990s we went from wires to fibres and these fibre-optic cables can carry so much information. But once they get to the electronic computer, the computer itself is just not fast enough. So I thought: why not build an optical computer?"

Holzman solidified his theory while conducting research into the concept of "optical switching" at the Swiss Federal Institute of Technology in Zürich nearly



Assistant Professor Jonathan Holzman tries out the new Zeiss microscope.

two years ago, but in order for him to take the concept from idea to actuality he required some critical equipment—high-powered microscopes capable of 1,000x magnification.

While UBC Vancouver has the equipment, it really wouldn't be practical for Holzman to travel back and forth. But it's equally true that big ticket items like this don't show up on university doorsteps on a regular basis, so Holzman crafted a grant application along with two colleagues in the school—Associate Professor Deborah Roberts and Assistant Professor Mina Hoorfar. Their combined proposal convinced the Natural Sciences and Engineering Research Council of Canada to give them a grant of \$120,000—instantly illuminating the prospect of optical computers.

"What was my reaction? When I got up off the floor, I was quite excited," laughs Holzman. The money is enough to purchase what Holzman calls two "workhorse"

Continued on page 4

# Message from the Dean

## A changing of the guard!



Welcome to the fall 2007 issue of *Ingenuity*. In September, I notified the Provost of my desire to step down as Dean effective June 30, 2008. This will come after 11 years of service in the position. I have welcomed the opportunity to lead the Faculty over the past decade, and have very much enjoyed my tenure as Dean. I look forward to reporting in detail in the spring 2008 issue of *Ingenuity* on the state of the Faculty and its accomplishments over the past 11 years.

The end of my term is associated with a notable “changing of the guard” at UBC—both across the university and within the Faculty, and I would like to highlight the extent of these changes.

With respect to the university’s senior leadership, you may recall that last year we were pleased to welcome Stephen Toope as the 12th President and Vice-Chancellor at UBC. This September we were also pleased to welcome David Farrar as the new Vice President Academic and Provost. At the Okanagan campus during the summer of 2006, Doug Ooram and Alaa Abd-El-Aziz took up the positions of Deputy Vice Chancellor and Associate Vice President Academic and Research, respectively.

Within the Faculty, we are also going through a period of transition in our leadership. During the summer of 2006, Spiro Yannacopoulos was appointed as the inaugural Director of the School of Engineering at the Okanagan campus; and on the Vancouver campus, the heads of five of the six engineering departments will have changed by July 2008.

The first of these has already occurred. Sheldon Green became the new Head of Mechanical Engineering on July 1, taking over from Nimal Rajapakse (who has himself moved on to become Director of the Institute for Computing, Information and Cognitive Systems).

Next June, Vijay Bhargava will be stepping down as Head of Electrical and Computer Engineering after five years; Steve Cockcroft will be stepping down as Head of Materials Engineering after eight years; Eric Hall will be stepping down as Head of Civil Engineering after five years; and Malcolm Scoble will be stepping down as Head of the Norman B. Keevil Institute of Mining Engineering after ten years.

All of these heads have given selflessly of their time and have served the Faculty with distinction. These are the unsung heroes who deal with the day-to-day issues of each department’s development, the delivery of the academic programs, and ensure a supportive research environment for professors. We are most grateful to all of them for their enormous contributions over the years.

Chemical and Biological Engineering Head Kevin Smith will be the senior engineering department head at that point, being seven years into his appointment. I am confident that he will be a gracious and welcoming mentor to the new heads.

During this process of leadership renewal, I have taken the opportunity to consider also the roles of the associate deans and have, thereby, established a fourth associate dean position. Savvas Hatzikiriakos recently stepped down as Associate Dean Research and External, and Robert Hall and Don Mavinic were recently appointed as Associate Dean Engineering Students and Associate Dean Faculty and Research, respectively. The corresponding changes are described in detail on page 14.

It is these leaders and others that have brought the Faculty where it is today. Please join me in expressing sincere gratitude to those who have stepped down and to those who continue to lead us.

As always, please contact me—by letter, telephone 604-822-6412, fax 604-822-7006, or e-mail dean@apsc.ubc.ca—if you are able to assist in the development of the Faculty, if you have any suggestions to provide, or if you would like further information on UBC Engineering.

A handwritten signature in black ink that reads "Michael Isaacson". The signature is written in a cursive style and is positioned above a horizontal line.

**Michael Isaacson**

Dean

To view past issues of *Ingenuity* and learn more about the Faculty, visit our website at <http://www.engineering.ubc.ca/publications>.

# Raising the profile of mechanical engineering

## New department head is on a mission

“At UBC we have the top second-year mechanical engineering program in Canada,” says Sheldon Green, the new Head of the Department of Mechanical Engineering. And this is in part thanks to his work behind the scenes over the years.

Prior to being appointed head in July of this year, Green served as assistant head responsible for undergraduate matters for the previous seven years. He chaired the department’s curriculum committee and served on the Faculty’s curriculum committee, through which he played a leading role in revitalizing the undergraduate program.

During that time, mechanical engineering option streams in mechatronics, thermofluids and biomedical engineering were launched, a bridging program with Camosun College was established, and the multi-award winning MECH 2 program was realized. It is the latter that gives Green the most pride, and is the justification for claiming the best second-year program in the country.

Not one to stop at being the best, Green has two major future curriculum goals: the development of partially integrated third-year courses and the implementation of core graduate courses. “I believe

strongly that at the master’s level a graduate degree should still be broad,” explains Green. “I look forward to discussions with my colleagues on moving in that direction.”

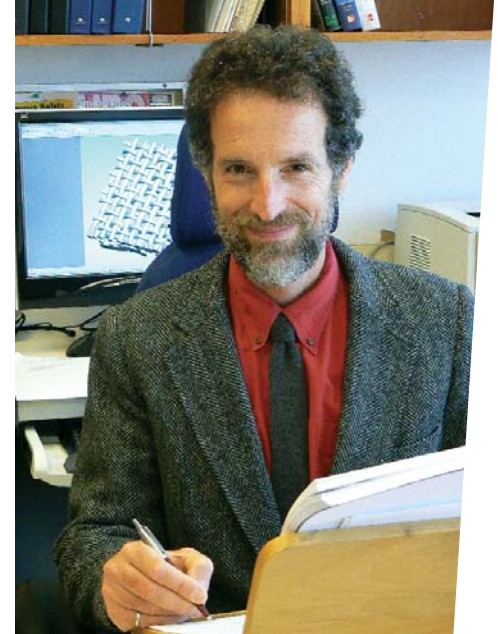
Green came to UBC in June 1989 as an assistant professor specializing in fluid mechanics, fluid vortices and aerodynamics, particularly as they apply to the marine, pulp and paper, and biomechanics industries. He received his B.A.Sc. in Engineering Science from the University of Toronto in 1984, and his M.Sc. and Ph.D. degrees in Mechanical Engineering from the California Institute of Technology in 1985 and 1988, respectively. He obtained his P.Eng. designation in 1990.

He is quick to point out that he is lucky to have inherited a very strong department from former head Nimal Rajapakse. “We have top notch people here,” says Green. “We have, if not the very best department in the country, certainly one of the top few.” He sees his mission now as largely public relations. His goal is to get the word out as to the quality of the program and to strengthen student recruitment at both the undergraduate and graduate levels.

To achieve this goal, he has already made several administrative changes. The past leadership structure included two assistant heads: one for undergraduate students and one for graduate students. Green explains the changes: “I threw that model out and now have an assistant head of teaching, because there are so many synergies between undergraduate and graduate teaching; an assistant head of administration, simply because there are so many administrative duties to be carried out; and an assistant head of external relations, to focus on outreach activities with our external communities, including both undergraduate and graduate recruitment.” He has also assigned to a staff member dedicated student recruitment duties.

He would also like to raise the profile of the engineering profession as a whole. He says, “I think one of the most important things as a Faculty that we must do is raise the profile of the profession so that we encourage the very best people to enter engineering.”

What is his vision for the future? He would like to see his colleagues in the department assist in issues of critical concern to Canadian society—such as sustainability, through enhanced ties with the



New Mechanical Engineering  
Department Head Sheldon Green

UBC Clean Energy Research Centre, and support for our aging population, through more collaboration between the Faculty of Medicine and our biomedical engineers.

“Sustainability and our aging population are the two major issues that society/humanity is facing,” concludes Green. “There are many ways in which mechanical engineers can help in these areas.”

# Research powerhouse wins again

Two new NSERC awards for  
UBC Pulp and Paper Centre

Recently the Natural Sciences and Engineering Research Council of Canada (NSERC) bestowed upon the UBC Pulp and Paper Centre its fifth and sixth Synergy awards for outstanding university-industry collaborations.

An NSERC Synergy Award for Innovation was awarded to Mechanical Engineering Professor Emerita Martha Salcudean, along with partners Paprican, Weyerhaeuser, and Process Simulations Limited for their recovery boiler modeling and

simulation; and another was awarded to Mechanical Engineering Associate Professor James Olson, and partners Advanced Fiber Technologies, Canfor and BC Hydro for their high performance pulp screens.

This is the second Synergy award for Olson. He first won with OpTest Equipment Inc. and Paprican in 1998 for their Fibre Quality Analyzer.

The Synergies were launched in 1995 to recognize the most outstanding achievements in university-industry collaborations in Canada.

“With five Innovation awards and one Leo Derikx award, this is by far the largest number of such awards won by any centre in the country,” says Guy Dumont, Director of the Pulp and Paper Centre and two-time Synergy winner himself. Dumont won the Synergy Award for Innovation in 1999 with Universal Dynamics for the adaptive controller Brain Wave; and he won it again in 2002 with Honeywell Industry Solutions for the IntelliMap software tool.

The centre was also a partner in receiving

the Leo Derikx Award in 2004, along with Paprican, McGill University, École Polytechnique and Papier.

“The centre accounts for two-thirds of the Synergy awards obtained by UBC—6 out of 9—and confirms the centre as a national powerhouse of university-industry collaboration,” observes Dumont.

---

## Moving at the speed of light... Continued from page 1

microscopes and one fancy, high-powered microscope to do the intense work he requires.

Since the grant came through, Holzman has been courted by the best manufacturers in the world, including Olympus, Leica, Nikon and Zeiss.

Holzman demonstrated how the high-powered microscope and computer screen enables him to view the chemical manipulation required to do his work. He compares it to developing film. While traditional electronic circuit boards can use tweezers as the primary work tool, Holzman's research requires combining chemicals to create the optic paths.

The critical first step will be to create what Holzman calls the “optical processor.” This is essentially equivalent to the transistor which turns on and off electric current. The idea is to create a laser version of the transistor so that the information can move optically. If Holzman's theories prove true, he says “we will have to stop thinking about

computer chips as flat electronic-microchip-processors and start picturing them as optical-nanocube-processors.”

Of course, all this is literally academic for now. Holzman predicts it could take 10 years before industry leaders begin using optical technology. Once there, it's almost impossible to predict how it will evolve. “You have to rewind time to see the possibilities sometimes,” he said. “I grew up in the 1980s and I remember seeing my first colour photography on the computer and that was revolutionary then. Now we're looking at streaming systems of video images and watching TV. No one knew we would be able to do that.”

Like every invention that springs to life, it's up to people themselves to decide what to do with it. The only limitation lies in our human imagination—the ultimate spark of light.

*(Karin Wilson is an Okanagan-based freelance journalist.)*

# Who owns the invention

When professors, students and industry collaborate?

Engineering professors are some of the most inventive researchers to be found in a university setting. They spend endless hours in their laboratories—invariably with a number of graduate students either at their sides or leading the charge—advancing science and technology for the benefit of society.

Sometimes they are funded by and collaborate with industry partners on a particular problem. This research may lead to patents being filed, licensing agreements being signed, and spinoff companies being launched. These steps are often necessary for research to find its way into our everyday lives.

But who owns the research with so many individuals involved in achieving it? Known as “intellectual property” (IP), that is where the UBC University-Industry Liaison Office (UILO) comes in. It specializes in collaborative research agreements, patent applications, licensing agreements, and spinoff launches for the purpose of fostering and commercializing research. UILO liaises with faculty members, students and industry partners to iron out the details of IP ownership, so that the next development can leave the laboratory and be introduced into society—and perhaps generate a little profit on the side.

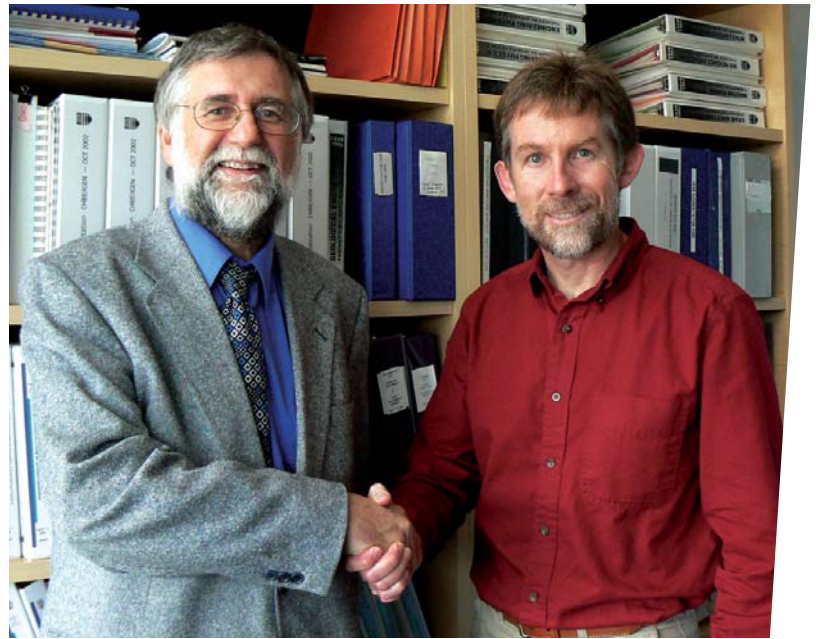
To say that this is a tricky business is an understatement. With so many crucial players involved, negotiations can be challenging. The good news is that those challenges have recently dwindled significantly. A *Task Force on University-Industry Sponsored Research Arrangements* initiated and set the stage for such improvements. Its report was completed in June 2006 and has been well received.

Since then, the Faculty and UILO, with input from senior industry leaders, have been hard at work to further refine guidelines so as to ensure that the IP climate is as supportive as possible for faculty, students and industry.

“The UILO views itself as a service organization that supports faculty and students, while simultaneously ensuring that all agreements adhere to UBC’s Academic Principles and University Requirements,” says UILO’s Managing Director Angus Livingstone.

Enhancements have been introduced in three particular areas:

A very successful “student project” pilot agreement, first developed by Professor Peter Lawrence, *Chair in Design Engineering*, is now available for all undergraduate and graduate student projects in engineering. It assigns IP ownership to the student and/or the company.



Dean Michael Isaacson (left) and UILO Managing Director Angus Livingstone

UILO has developed a short set of template agreements to cover different circumstances. Whenever these are adopted without modification, they can be established in a matter of days. (Of course, the parties may modify these by mutual agreement, but they will then take longer to establish.)

Thirdly, with respect to collaborative research projects, the UILO’s role is to advise faculty members on such matters, and will then adhere to their wishes with respect to the nature and extent of IP ownership and assignment—subject, of course, to these conforming to the Academic Principles, University Requirements and Third-party Rights.

The proposed enhancements are subject to ongoing consultation with industry representatives.

In order to distinguish perceptions and experiences based on the modified practices versus those based on previous practices, an on-going, arms-length assessment of satisfaction levels of the various parties with respect to all agreements will be undertaken.

“It is important to industry, and therefore to the Faculty, that clear IP arrangements can be easily established at the outset of a project,” explains Dean Michael Isaacson. “We are pleased to report that these template agreements are now in place.”

Continued on page 14

# Faculty development

## Engineering for our communities

As a friend of UBC Engineering, you know first hand the effect that engineers have on industry and communities. As a development team, we work hard because we know our efforts go towards bringing highly qualified engineers into our communities and innovative new solutions into our industries.

It's a great pleasure to me to see how many of you as alumni and as part of the engineering community give back to engineering education with exactly the same

goals in mind: the better the education we provide, the more benefits are accorded to our businesses and our society.

As always, I am very proud to bring to you news of our fundraising efforts for the Faculty. In this issue, you'll find a report on the support of our government: we recently received \$7.5 million from the Province of British Columbia, a match to the gift of a year ago from Teck Cominco and partners. We are pleased to highlight the support of our industries: we've established several new

scholarships and a new engineering option with the help of industry partners.

Last but definitely not least, I am excited to showcase the support of our alumni: Mr. Sandy Laird and Mr. Jay Taylor have led the way for an innovative new student development fund for mining engineering students, and Mr. Paul Geyer has established a scholarship for one of our newest programs. It's a pleasure to work with each of you towards excellence in engineering education—and, in turn, towards industry growth



and community development.

If you would like more information on how you can join with us in building UBC's engineering programs, please contact me at 604-822-1329 or [hillary.gosselin@ubc.ca](mailto:hillary.gosselin@ubc.ca).

A handwritten signature in cursive script that reads "Hillary Gosselin".

**Hillary Gosselin**  
Director of Development

## New Power Engineering Option

Thanks to support from industry and government

A new Power Engineering Option for undergraduate students in the Department of Electrical and Computer Engineering has been created with the assistance of the provincial government and donations from industry partners.

BC Hydro and the BC Transmission Corporation (BCTC) each committed \$180,000 over three years; FortisBC pledged \$30,000 over three years; and the BC Ministry for Energy, Mines and Petroleum Resources pledged \$25,000—for a total of \$415,000 of support for the new program.

The electricity sector in Canada is anticipating a significant labour shortage of skilled technical workers over the next ten years. The graduates of this new program will be essential for maintaining electricity supply and meeting growing demands for energy.

Professor Jose Marti, whose power engineering research was profiled on the cover of the last issue of *Ingenuity*, is leading the development of this option. His research in power engineering will ensure development of a cutting-edge curriculum for the

program. Courses relating specifically to this option will be taught by Professor Marti and internal program coordinator Professor Juri Jatskevich as well as Professors William Dunford and Luis Linares and Professors Emeriti Hermann Dommell and KD Srivastava.

The Power Engineering Option will be offered to students entering their third year of undergraduate work within the department, and there will be room for 30 students each year. Students will concentrate their studies on the fundamentals of electrical engineering with a focus on power systems, specifically electric power transmission and distribution, power conversion, electromechanical devices and the theory of control systems.

In addition, courses will be offered that extend into the business, environmental and socio-economic aspects of power engineering, promoting environmental, social and financial sustainability. Students will have the opportunity to meet and network with BC Hydro, BCTC and FortisBC representatives during their studies.

The first cohort of students from this option will graduate in spring 2008.

# \$7.5 million from B.C. Government

## Matches Teck Cominco gift to Mining Engineering

On May 17, 2007 Premier Gordon Campbell announced the Government of British Columbia's commitment of \$7.5 million towards mining engineering programs at UBC. The funding is a match to the \$7.5 million invested by Teck Cominco and industry partners in May 2006, which established the Norman B. Keevil Institute of Mining Engineering.

"The funding for this institute will help expand UBC's teaching and research capacity and ensure the long-term success of the mining industry and its contribution to the B.C. economy," the Premier said. He went on to address the importance of mining engineering to B.C.'s economic growth.

Vancouver is one of the world's main centres of mining expertise and technology, and is home to many of Canada's largest mining corporations. In 2006, investment in mineral exploration in B.C. soared to \$265 million and solid mineral production in B.C. reached \$6 billion.

Premier Campbell was joined by UBC President Stephen Toope, Minister of State for Mining Kevin Krueger, Teck Cominco President and CEO Don Lindsay, Norman Keevil III and Dean Michael Isaacson at the announcement. Professor Toope spoke about the role of

engineering in the industry. "This generous gift will allow UBC's Faculty of Applied Science to address critical issues faced by the modern mining sector, such as human resource development, community involvement, and safe and sustainable mining practices," he said. "The institute will significantly enhance our programs in learning and research, and help meet the demand for skilled professionals in the industry."

Plans are already underway to expand student spaces, develop new curricula and update facilities within mining engineering to support this growth. New student enrolment in September 2007 was approximately 40 students, the most ever. The institute will also continue its groundbreaking research and teaching in mining engineering, mining and sustainability, and mining and community issues, and will develop courses reflecting these priorities within undergraduate, graduate and life-long learning curricula.

Teck Cominco has taken a leadership role to pursue this partnership with the government. "Without Teck Cominco's leadership and their commitment to secure \$7.5 million in private funding, we would not have been so successful in pursuing this matching funding," says Dean Michael Isaacson.

"We are extremely pleased with and appreciative of the support we have received from Teck Cominco, industry partners and the Province of British Columbia. The gift from Teck Cominco and

partners combined with the government match provides a solid foundation for the continued growth of our mining programs for the foreseeable future."



From left: Minister of State for Mining Kevin Krueger, Norman Keevil III, Premier Gordon Campbell, Dean Michael Isaacson, UBC President Stephen Toope, Teck Cominco President and CEO Don Lindsay.



Norman B. Keevil (left) and Malcolm Scoble at the plaque naming the institute in Keevil's honour.

# Engineering alumni at UBC

More than just reunions

This September we were pleased to host, as we do every year, class reunions for the 30th, 40th and 50th years. As usual, it was a great pleasure for us to welcome you back to UBC, to learn more about your experiences as a student, to hear about your careers after leaving UBC and to update you on the Faculty today.

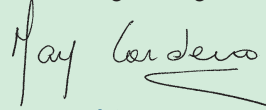
Engineering today at UBC has a lot to boast of: cutting-edge research that helps UBC earn its reputation as one of the top research universities in the country; talented students who win engineering competitions, contribute their skills to Engineers Without Borders, and go on to lead our industries; and high-quality laboratories and learning spaces.

Each issue of *Ingenuity* highlights alumni involvement through reunions, but what you might not realize is that you, as an alumnus, are every bit as important a piece of our future success as our students, faculty and infrastructure.

There are many ways for you to get involved with engineering education today. The Faculty regularly invites

alumni to campus to give guest lectures and participate in mentorship events. Alumni provide co-op opportunities for our students, help recruit students into our programs, and act as advocates for us in industry and the community. Each of these things helps build our programs and ensure our success and growth as an engineering school—and is an opportunity for you to bring your expertise to tomorrow's engineers.

We would like to welcome every one of you to get involved with your alma mater—we would be pleased to have you with us as we forge ahead in our pursuit of engineering education excellence. Your expertise, your advocacy, and your support will ensure you continue to be proud to say you are a graduate of UBC Engineering.



**May Cordeiro**  
Alumni Relations Officer

## Add your memories to hEUSory

We would like to let you know about a new website just for you! UBC Engineering alumni with stories to share can now take part in the hEUSory project, an initiative to document the history of the Engineering Undergraduate Society at UBC.

The website aims to gather together the stories, legends and traditions of engineering at UBC, and we invite you to browse, comment and contribute. To do so, visit <http://heustory.apsc.ubc.ca>.

## 2007 Event Highlights

### BASc '47—60th Reunion—June 1, 2007

The Class of 1947 (below) celebrated its 60th anniversary on June 1, 2007. Pat (Allan) Neilson initiated the event that drew over 30 graduates and guests to a luncheon reception in the new Chemical and Biological Engineering Building and tour of the Clean Energy Research Centre.

Back Row: G. Tanner, F. Andrew, B. Robinson, J. Slingsby, H. McLellan, J. Wheeler, R. Hill, A. Greenious; middle row: R. Fenn, M. Fenn, R. Cox, D. Hazelwood, E. Hesla, A. Neilson, W. Osborne, N. Wheeler; front row: M. Robinson, J. Seppela, E. Redmond, S. Cox, J. Hayes, D. Web, E. Slingsby



## CHML '87—20th Reunion— August 4 and 5, 2007

The 1987 Chemical Engineers and their families (right) spent August long weekend reminiscing about old times, talking about people who couldn't make it, and catching up on 20 years of new memories. Bradley Lock (CHML '87) organized the event that included a boat cruise to Bowen Island for a picnic lunch and a football game just like they used to play outside the old Chem-Eng building. (Photo courtesy of Bradley Lock.)



## EECE '60-'97—August 20, 2007

EECE alumni from the classes of 1960-1997 gathered for their eighth annual barbecue at the UBC Golf Course on August 20. Besides the opportunity to catch up with classmates, guests were updated on activities within the department by Head Vijay Bhargava. As well, Alan Novakowski, a '71 graduate, spoke about the Class of '71 efforts to establish a scholarship.

Right: EECE alumni and guests enjoy a scrumptious buffet. (Photo courtesy of alumnus Gary Wong.)



## CIVL '49—58th Reunion— September 11, 2007

The Civil Engineering Class of 1949 (below) enjoyed their 58th reunion in Victoria at the Dunsmuir Lodge. (Photo courtesy of Sandy Robertson.)



## BASc '57—50th Reunion— September 17, 2007

The graduates of Applied Science 1957 (below) celebrated their Golden Anniversary at Cecil Green House with a luncheon and presentation from Dean Michael Isaacson.



## BASc '67 and '77 Reunions— September 17, 2007

Thirty- and 40-year Applied Science grads enjoyed an evening reception and a Faculty update from Dean Isaacson in the lobby of the new Chemical and Biological Engineering Building.



# Ken Finch succeeds in business

But engineering is what got him there

"I don't remember a time when I didn't want to be an engineer," says Ken Finch, who graduated with a B.A.Sc. in Civil Engineering in 1968. After finishing high school in Merritt, B.C., UBC was the logical choice for Ken who remembers his five years at university as "some of the best of his life."

Currently President and CEO of Kal Tire, Canada's largest retail and commercial tire dealership, Ken considers his days at UBC in Civil Engineering as a combination of intellectually challenging courses and great social activities—particularly, he says, the socials with the nurses.

He had originally intended to study electrical or mechanical

engineering, but once he arrived at UBC he discovered an aptitude—and a passion—for structures, and joined the Department of Civil Engineering. He then spent 12 years working as a civil engineer, ending up as Chief Engineer for Permasteel Engineering in Vancouver. Working at Permasteel, a design-build contractor, Ken found a lot of satisfaction designing both family houses and commercial buildings and then seeing his designs become reality.

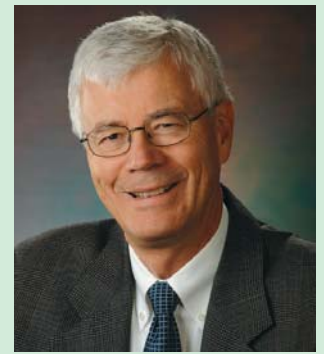
In 1980, however, his career took a new turn when Tom Foord offered him a position as Senior Vice President of Kal Tire, the family business. This new move would take him away from the civil engineering that he loved, but the new opportunity to apply

his skills in a successful and growing business was too hard to pass up. In October 1980, Ken joined Kal Tire.

He was both pleased and surprised to find out how much his engineering education helped him succeed in business.

"There's an indirect link between engineering and business," he says. "The training you receive as an engineer—the ability to problem solve by gathering the facts, evaluating all aspects of a problem, parsing it out logically and coming to a solid conclusion—that's invaluable in good business."

He is now firmly of the belief that business training should be made available to all engineers while they pursue their education. "Most of the engineers I went to school with have



Ken Finch (CIVL '68)

ended up in senior management, and business skills are crucial," he notes.

Ken took over the role of President from Tom Foord in 2005, and continues to enjoy being part of a successful business and a successful team. "I couldn't have had this career without the discipline and knowledge of my engineering training," he says. His advice to other engineers who are entering the workforce? "Push yourself beyond your field. Don't be afraid to move beyond your engineering training. The non-technical challenges you will face might just be the most rewarding," he smiles. "They have been for me."

## Upcoming Events

Events	Dates/Details
<b>Alumni Achievement Awards</b>	<b>November 15, 2007</b> Come share in the achievements of UBC's outstanding alumni at the reception and awards ceremony at the Chan Centre for the Performing Arts. An after-party at Sage Bistro is being hosted by the UBC Alumni Association's Board of Directors. For more detailed information or to purchase tickets, please visit <a href="http://www.alumni.ubc.ca/events/awards">http://www.alumni.ubc.ca/events/awards</a> .
<b>Toronto Alumni Event</b>	<b>November 29, 2007</b> A UBC Engineering Alumni Reception is being hosted by the Faculty of Applied Science for graduates in the Toronto region.
<b>Old Red New Red</b>	<b>February 7, 2008</b> The Engineering Undergraduate Society (EUS) is hosting its annual Old Red New Red event. All engineering alumni are encouraged to come meet current engineering students and faculty and see what today's ball models look like! RSVP to <a href="mailto:2ndvice@ubcengineers.ca">2ndvice@ubcengineers.ca</a> .
<b>UBCO Alumni Event</b>	<b>February 13, 2008</b> UBC Engineering graduates in the Kelowna region are invited to UBC Okanagan for an alumni reception.
<b>Alumni Weekend 2008</b>	<b>May 23, 2008</b> Save these dates in your calendars—2008 marks UBC's Centenary—come out and celebrate 100 years of achievement! Applied Science reunions will also coincide with Alumni Weekend. Please get in touch with us if your contact details change to ensure you receive your invitations.

Detailed information on events planned for 2008 will be mailed in the coming months. If you would like to get involved, update your contact information, or have any questions, please contact us by phone at 604-822-9454 or by email at [alumni@apsc.ubc.ca](mailto:alumni@apsc.ubc.ca). Information on upcoming events will also be available at: <http://www.engineering.ubc.ca/alumni>.

# Biomedical Engineering receives boost

## Paul Geyer Graduate Award established

The Biomedical Engineering Program was officially established within the Faculty only a year ago, and has already attracted the attention—and support—of alumni and the biomedical engineering community in British Columbia.

EECE alumnus Paul Geyer (BASc '88) recently established the *Paul Geyer Graduate Award in Biomedical Engineering* with a \$50,000 endowment. The award provides \$2,500 annually to a graduate student in the Biomedical Engineering Program who shows an entrepreneurial spirit and demonstrated leadership skills.

Mr. Geyer has been an entrepreneur in the biomedical field since his graduation from UBC and is currently Chairman and CEO of Medical Ventures Corporation, a medical device and technology company that develops and commercializes medical devices for the cardiovascular and surgical fields. Mr. Geyer is also the Chairman of the Board for Science World in Vancouver.

“Biomedical Engineering has an essential part to play in improving health care and the quality of life of people worldwide,” he says. “Graduates of this program have the potential to make a significant, positive impact on many lives. I am very pleased to be able to lend my support to students.”

Student awards such as these are instrumental to the growth of all new programs, attracting new students and ensuring that academic achievements are recognized. The Biomedical Engineering Program offers three graduate degrees: the M.A.Sc., the M.Eng., and the Ph.D. As well, it is available as an undergraduate specialization option within both the Department of Electrical and Computer Engineering and the Department of Mechanical Engineering.



Paul Geyer (EECE '88)

---

# Mining alumni triple investment

## Student Development Fund benefits

Last fall Mining Engineering alumnus Sandy Laird offered to contribute \$50,000 to establish the *Mining Engineering Alumni Student*



Sandy Laird (MINE '57)

*Development Fund* with the hope that his gift would inspire other alumni to match his gift with their own.

One year later, mining alumni and friends have come through threefold, contributing almost \$140,000 to build a \$190,000 endowment. Jay Taylor, former President and CEO of Placer Dome, matched Sandy's contribution with his own gift of \$50,000.

The fund, which continues to grow, is dedicated to student activities—

everything from classroom and laboratory supplies and equipment to student field trips and conference participation, to student recruitment, co-op activities, and emergency financial support.

“The intention is to ensure that students have every resource they need to make the most of their time at UBC and gain the skills—both personal and professional—that will enable them to reach their highest potential,” says Sandy Laird of the fund.

“The Norman B. Keevil Institute of Mining Engineering is pleased to be the recipient of Mr. Laird's and Mr. Taylor's leadership in the support of mining engineering education,” noted Keevil Institute Director Malcolm Scoble.

Mr. Laird spent 38 years at Placer Dome and was Executive Vice President for Global Operations before his retirement in 1999. Mr. Taylor spent 32 years at Placer Dome before retiring as President and CEO in 2004.

# UBCO School of Engineering update

## Students launch new EUS chapter on the Kelowna campus

The Engineering Undergraduate Society (EUS) has helped create a sense of community and belonging for engineering students at UBC for generations. That tradition now moves to UBC Okanagan, where students in the School of Engineering have launched their own chapter of the EUS.

Jackie Nichols is entering third-year electrical engineering at UBCO.

Recently elected Vice President External Relations for the Okanagan chapter of the EUS, she hopes the society will create traditions and cohesiveness among the growing student body.

“We really want to connect students to academic and social activities that help them feel like they belong to the university and the unique role they play here.”

The EUS, responsible for such things as hosting

“Frosh” week activities to welcome new engineering students and for the sale of the signature red engineering jackets, will help lead the 246 students currently enrolled at UBCO

Engineering. And as a salute to their link to the EUS at UBC Vancouver, the EUS has plans to replicate the iconic Engineering cairn from UBC Vancouver at UBC Okanagan. The new cairn will eventually

be located near the new 200,000 square foot Engineering and Management Building.

On campuses across North America, engineering students are viewed as leaders with a strong commitment to community service. It’s hoped the EUS at UBC Okanagan will embrace the traditions created in 1915 at Point Grey, and carry them on for generations to come.



Margo Yacheshyn

Jackie Nichols is the VP External Relations for the new EUS chapter at UBCO.



The E cairn and signature red letterman jackets are just some of the traditions that the EUS hopes to bring to the Okanagan.

## Five new scholarships for UBCO engineering students

The new School of Engineering at UBC Okanagan has recently established five new awards for engineering students.

CTQ Consultants recently pledged \$30,000 for two \$5,000 annual awards—an entrance scholarship open to all students and a scholarship directed to students entering third-year civil engineering.

BC Hydro contributed \$20,000 to endow a \$1,000 award for students involved in studies related to energy conservation and sustainability.

*The Stantec Scholarship in Engineering* is an annual award of \$3,000 available to students

entering their final year of studies. *The FortisBC Scholarship in Engineering* is a \$2,500 award given annually to a student entering third- or fourth-year electrical engineering.

Finally, the *Leelan Hanna Engineering Scholarship* awards \$1,000 annually to a female student enrolled in engineering.

“I would like to thank all donors for their support of engineering programs at UBC Okanagan,” said Spiro Yannacopoulos, Director of the School. “These awards will be of great benefit to students and the school as we continue to build our engineering programs in Kelowna.”

# Faculty responds to student needs

## Graduate Teaching Assistant Training Program is launched

Every year hundreds of graduate students are recruited to serve as teaching assistants (TA's) in classrooms and laboratories throughout our engineering programs. They provide a vital role in supporting professors' efforts to meet the needs of their undergraduate students.

While TA's are an invaluable resource to both professors and students, they are not experienced teachers. Recognizing the significant role that TA's have in creating a rich learning environment for our undergraduate students, the Faculty is committed to supporting and enhancing their teaching efforts and professional growth.

Recently, the undergraduate student body has also identified this as a goal, and has asked the Faculty to build upon this service. We are pleased to report that the Faculty has made the first step in supporting this initiative—the

### *Graduate Teaching Assistant Training Program.*

Launched this fall as a pilot project by the Centre for Professional Skills Development (CPSD), the training program is now mandatory for all graduate students applying for a TA position for the first time.

As part of the process, applicants first submitted a resumé and a one-page Statement of Teaching Philosophy, which were reviewed and assessed.

Based on the results of those assessments, some applicants were deemed to be sufficiently qualified and immediately added to the pool of returning TA's being considered for positions by individual departments.

Those not immediately qualified were slated for one day of training to develop: (i) their instructional skills, and/or (ii) their marking and report writing skills, and/or (ii) their communication skills. Organized in three one-and-a-half-hour



Seasoned TA Rod Foist, an electrical engineering Ph.D. student, shows students the ropes in EECE 474, a six-credit instrumentation design laboratory.

workshops throughout the day, these workshops were facilitated by CPSD Senior Instructor Tatiana Teslenko, CPSD Sessional Lecturer Estella Qi, and Faculty of Medicine Adjunct Professor Debby Altow.

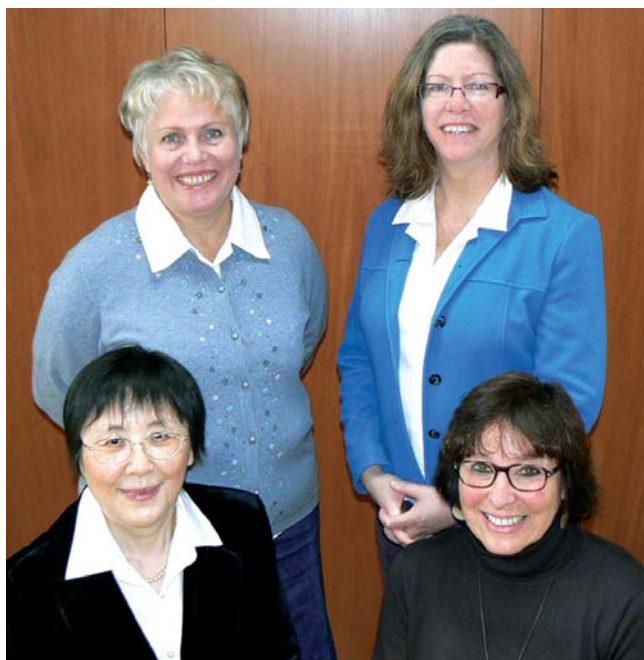
According to the program's co-ordinator, Deb Feduik, students enjoyed the opportunity to get to know one another and begin to network with their peers—many of them are not only new to teaching, but to UBC itself.

Upon completion of the program, the majority of workshop participants were deemed sufficiently trained to be considered for a position as a TA in engineering. While a very small number of applicants were held back, they were

encouraged to build their skills and try again next year.

“We trust that these efforts will enhance the learning experience for our undergraduate students,” says Rob Hall, Associate Dean Engineering Students. “At the same time, we are delighted to be able to provide our graduate students with this opportunity to develop their professional skills.”

The 200 students who went through the program this fall were also offered access to an electronic and anonymous survey mechanism to provide feedback on what worked and what didn't in this pilot project. The Faculty will be relying heavily on this feedback in developing the program further.



Clockwise from top left: Tatiana Teslenko, Deb Feduik, Debby Altow and Estella Qi

# Changes in leadership

## New associate deans with new portfolios

The Faculty of Applied Science has been led by Dean Isaacson for just over ten years now; and throughout that time, he has been assisted by three associate deans. Most recently these have included Professors Perry Adebar, Bruce Dunwoody and Savvas Hatzikiriakos. Earlier this summer, Savvas Hatzikiriakos' term ended and the dean took this opportunity to re-evaluate the structure of his leadership team and how the needs of the Faculty might be better served.

The result is that a fourth associate dean portfolio has been developed and two new associate deans appointed.

Perry Adebar continues as Associate Dean Resources and Administration, overseeing capital projects, resource allocations and curriculum enhancements. This year he also chairs the Committee on Academic Planning and Resources and the Faculty Curriculum Committee. He is also responsible for accreditation matters.

Don Mavinic replaces Savvas Hatzikiriakos. The title for this portfolio also changes to Associate Dean Faculty and Research, reflecting the critical roles that faculty recruitment, retention and career advancement have on the Faculty.



Each year, up to 50 new appointment, reappointment, promotion and tenure cases are considered. Don Mavinic, who has just completed three years on the Senior Appointments Committee, brings notable experience in such matters. The remainder of his portfolio involves developing research initiatives, collaborations with other institutions, and enhancing the research environment for our faculty members.

Another significant change relates to the engineering student portfolio. This portfolio has been expanding, in part because of increasing student enrolments and in part because of increasing services and activities. Accordingly, the portfolio has now been restructured into two: Associate Dean Engineering Programs and Associate Dean Engineering Students.

As Associate Dean Engineering Programs, Bruce Dunwoody continues overseeing all undergraduate engineering student services: advising, progression, graduation, appeals, discipline, scholarships and awards. He also continues with admissions, timetabling, enrolment management, and exchange and transfer programs. Finally, he is responsible for developing new engineering programs.

As the newly appointed Associate Dean Engineering Students, Robert Hall oversees domestic and international student recruitment efforts, the Engineering Co-op Office and the Centre for Professional Skills Development.

The latter includes such initiatives as the Professional Activities Fund, the Tri-Mentoring Program and Women in Engineering. He also liaises with the EUS and the Engineering Student Team Council and chairs the Student Advisory Council. Finally, he takes over the administration of the non-technical courses APSC 122, 201, 261 and 262, instructor and TA appointments, teaching evaluations, and the capstone design courses.

From left: Don Mavinic, Perry Adebar, Rob Hall and Bruce Dunwoody

---

## Who owns the invention... Continued from page 5

These cover everything from student projects, collaborative research, technology licensing, and more; and some of these provide various options regarding the assignment of IP. The choice of which option to pursue is informed by the specifics of the project and desires of the company and the faculty member involved.

According to Isaacson the proposed enhancements could substantially increase the extent of industrial collaborations beyond present levels.

“With these, we hope that industry, faculty and students will find the right supportive environment to do more together, and that their resulting accomplishments reach society sooner rather than later,” he concludes.

# Retirements

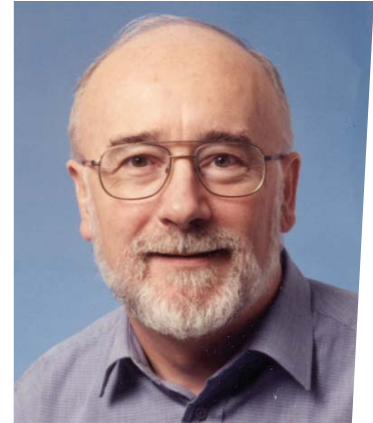
The Faculty would like to acknowledge with sincere appreciation the following faculty member, who retired on June 30, 2007, for his many years of service:

## Ian Yellowley, Mechanical Engineering

Ian Yellowley was educated in England—receiving a B.Sc. in mechanical engineering at Nottingham University in 1969; and M.Sc. and Ph.D. degrees at the University of Manchester Institute of Science and Technology (UMIST) in 1970 and 1974, respectively. He came to Canada in 1975 to work for McMaster University. Throughout his career he also worked at Rolls Royce, Westinghouse Canada, Memorial University, and the Technical University of Nova Scotia before joining UBC's Department of Mechanical Engineering in 1988.

An expert in the control and optimization of manufacturing processes, the design of embedded control systems and sensors, as well as the more general areas of product design and design innovation, Yellowley is one of UBC's most prolific entrepreneurs and continues to work closely with eCaffeinated Systems in the commercialization of reconfigurable FPGA centric control architectures. The underlying technology was developed by Yellowley and graduate students; he holds five U.S. patents on related technologies.

He is a Fellow of the B.C. Advanced Systems Institute, an Editorial Board Member of the International Journal of Machine Tools and Manufacturing, and an Associate Editor of the Journal of Manufacturing Processes. He was also heavily involved in the creation of the Canadian Design Engineering Network (CDEN), served as its inaugural Chair, and as a member of its steering committee for five years. He was recently named the CDEN Distinguished Lecturer.



Since retiring, he continues his research as Professor Emeritus in the department. He also hopes to find time to enjoy some hands-on engineering, kayaking, and fishing—and to finally return to golf.

# Appointments

## Materials Engineering

**Berend Wassink** was appointed Instructor on July 1. His research expertise is in the applied chemistry of extractive metallurgy, specifically hydrometallurgy.

## Mechanical Engineering

**Hsi-Yung (Steve) Feng** was appointed Associate Professor on September 1. His research focuses on five-axis sculptured surface machining, machining process planning, computational coordinate metrology, 3D scanning and geometric inspection, and point-based geometric modelling and representation.

## UBC Okanagan School of Engineering

**Yang Cao** was appointed Instructor on August 1. His research is in the areas of dynamics, control, robotics and mechatronics.

**Gordon Lovegrove** was appointed Assistant Professor on June 1. He is an expert in sustainable land-use transportation planning, with an emphasis on sustainable road safety.

**Abbas S. Milani** was appointed Assistant Professor on September 1. His research involves the multi-level identification of constitutive properties of textile composites as well as multi-criteria material selection and optimization methods.

**Laura Patterson** was appointed Instructor on July 1. She brings with her a background in rhetoric, culture and popular media, and teaches oral and written communications particular to engineering.

**Ahmad Rteil** was appointed Assistant Professor on July 1. His areas of expertise are in the strengthening and rehabilitation of concrete structures and the use of fibre-reinforced polymers (FRP) in new construction.

**Mohammed Sakr** was appointed Assistant Professor on September 1. His research focuses on driving techniques suitable for the installation of FRP and tubular steel piles.

**Ray Taheri-Ardebili** was appointed Instructor on August 1. His research expertise is in the area of materials science and engineering in general, and anti-corrosion coatings, including electroless Nickel-Phosphorous (EN), in particular.

# Achievements

Chemical and Biological Engineering Associate Professor **Elod Gyenge** has been appointed the Elizabeth and Leslie Gould Teaching Professor in Chemical Engineering.

Chemical and Biological Engineering Professor **Charles Haynes** has been inducted Fellow of the Royal Society of Canada.

Chemical and Biological Engineering Professor Emeritus **Paul Watkinson** has received the R.S. Jane Memorial Award from the Canadian Society for Chemical Engineers.

Chemical and Biological Engineering Professor **David Wilkinson** has been inducted Fellow of the Canadian Academy of Engineering.

Civil Engineering Assistant Professor **Ken Elwood** has received two honours: President's Award from the Los Angeles Tall Building Structural Design Council; and the American Concrete Institute's Chester Paul Siess Award for Excellence in Structural Research for the paper "Axial Capacity Model for Shear-Damaged Columns."

Civil Engineering Professor and Dean of Applied Science **Michael Isaacson** has received the Chairman's Award for Career Achievement from the B.C. Innovation Council.

Civil Engineering Professor **Barbara Lence** and graduate student **Andrew Wood** have received the Best Paper Award for the paper "Assessment of Water Main Break Data for Asset Management" in the Journal of the American Water Works Association.

Civil Engineering Professor **Rob Millar** has received the UBC Killam Teaching Prize.

Civil Engineering Professor **Alan Russell** has received two honours: he has been inducted Fellow of the Canadian Academy of Engineering; and he and Civil Engineering Assistant Professor **Sheryl Staub-French** have received the Best Paper Award at the Construction Research Congress of the American Society for Civil Engineering for the manuscript "4D CAD Via Linear Planning and 3D CAD."

Civil Engineering Professor Emeritus **Bob Sexsmith** has received the A.B. Sanderson Award from the Canadian Society for Civil Engineering.

Electrical and Computer Engineering Professor and Department Head **Vijay Bhargava** has been appointed Editor-in-Chief of the IEEE Transactions on Wireless Communications.

Electrical and Computer Engineering Associate Professor **Rob Rohling** has received the UBC Killam Teaching Prize.

Electrical and Computer Engineering Associate Professor **Robert Schober**'s Tier 2 Canada Research Chair in Wireless Communications has been renewed for an additional five years.

Engineering Physics Director and Associate Professor of Physics & Astronomy **André Marziali** has received the Innovation Award from the Association for Laboratory Automation.

Materials Engineering Professor **David Dreisinger** has received two honours: he was inducted Fellow of the Canadian Academy of Engineering; and received the Meritorious Achievement Award from the Association of Professional Engineers and Geoscientists of B.C.

Mechanical Engineering Professor **Yusuf Altintas** has been inducted Fellow of the Canadian Academy of Engineering.

**Ingenuity** is published by the Faculty of Applied Science, The University of British Columbia. [www.apsc.ubc.ca](http://www.apsc.ubc.ca)

#### Editor and Writer:

Sherry Green  
Communications Manager  
Faculty of Applied Science  
Tel: 604-822-9091  
[sgreen@apsc.ubc.ca](mailto:sgreen@apsc.ubc.ca)

#### Contributing Writers:

Tracey Charette  
May Cordeiro  
Hillary Gosselin  
Jeannie Scarfe  
Adrienne Skinner  
Karin Wilson

#### Design and Production:

Tandem Design Associates Ltd.

#### The Faculty's engineering activities include the following:

##### Departments, Schools and Programs

- Biomedical Engineering
- Chemical and Biological Engineering
- Civil Engineering
- Electrical and Computer Engineering
- Engineering Physics
- Environmental Engineering
- Geological Engineering
- Integrated Engineering
- Materials Engineering
- Mechanical Engineering
- Norman B. Keevil Institute of Mining Engineering
- UBC Okanagan School of Engineering

##### Office of the Dean

- Business & Development Office
- Centre for Instructional Support
- Centre for Professional Skills Development
- Engineering Co-op Office
- Engineering Student Services

##### The Faculty participates in several research centres and laboratories including:

- Advanced Materials and Process Engineering Laboratory (AMPEL)
- Clean Energy Research Centre (CERC)
- Institute for Computing, Information and Cognitive Systems (ICICS)
- Michael Smith Laboratories
- NUS-UBC Applied Science Research Centre
- Pulp and Paper Centre

##### Mailing address:

Ingenuity  
UBC Faculty of Applied Science  
5000—2332 Main Mall  
Vancouver, BC V6T 1Z4

## Fueling Our Future

### New book on sustainable energy

"A truly sustainable energy system is entirely possible," says Director of the Clean Energy Research Centre Bob Evans, author of the new book *Fueling Our Future: An Introduction to Sustainable Energy*.

Evans tackles one of the most important issues facing humanity today—the prospect of global climate change, brought about primarily by our prolific energy use and heavy dependence on fossil fuels. He shows how all of our energy needs are supplied from just three primary energy sources, why some proposed solutions are more sustainable than others, and how the link between energy consumption and greenhouse gas emissions can be broken.

Written in a non-technical and accessible style, it is a must read for politicians, policy-makers, and anyone interested in the future of our environment.

