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Spring 2011

Engineering

More than one hundred years of teaching and research excellence

From lab to industry

Design students solve real-world problems

Bold Ambitions campaign to impact Sexton campus

DALHOUSIE UNIVERSITY
Inspiring Minds

Faculty of Engineering

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With summer upon us we wish another graduating class all the best in the future and look forward to another great year at the Faculty of Engineering. Enrolment continues to grow with each year as does the level of excellence provided by our world-class faculty.

We've told you about the curriculum changes made to keep up with the issues of today and in this issue we introduce the faculty's renewed focus on design. Starting with our new NSERC Design Chair and new approaches to classroom learning, Dalhousie engineers will be ready to tackle the problems of today and tomorrow.

This past March, Dalhousie officially announced *Bold Ambitions: The Campaign for Dalhousie*. This ambitious effort will see $250 million dollars raised to benefit students and improve Dalhousie's infrastructure including the addition of the IDEA building on Sexton Campus. As you'll read, we're already over half way there and appreciate all the help and support given to Dalhousie and the Faculty of Engineering.

Your support is greatly appreciated. We wish you a safe and happy summer.

Dr. Joshua Leon, P.Eng.
Dean of Engineering

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Real-world design education

New NSERC chair established

"Students will be able to take their ideas out for a drive."

That, says Dr. Clifton Johnston, is the purpose of the new Natural Sciences and Engineering Research Council of Canada (NSERC) chair in Dalhousie's Faculty of Engineering. The Chair in Design Engineering (CDE) Program will help train students to apply the engineering principles they learn to solve real-world problems that lack clear and defined solutions.

Dr. Johnston, an industrial engineering professor, and Dr. Peter Gregson, professor in electrical and computer engineering and founder and previous director of the Faculty of Engineering's iDLab are co-recipients of the $1 million NSERC-CDE. It's meant to support innovative design education, the teaching of design throughout the faculty and establish collaboration within the university and other institutions across Canada. This is especially important, as the Canadian Engineering Accreditation Board has implemented new requirements on design that must be met in accredited programs.

"NSERC was a key player in increasing the emphasis on design in engineering," says Dr. Gregson, who was also one of the first recipients of the NSERC-CDE program in 2001.

"Tom Brzustowski (NSERC President from 1995-2005) recognized that the level of innovation had dropped. The program was launched to increase the teaching of design and innovation to better meet the needs of industry and society in Canada."

While this may seem obvious, since the 1950s, engineering education became increasingly analytical – more focused on one right answer. As a result, there was less emphasis on exploration and experimentation.

"It's tough to assess good design," says Dr. Johnston. "Design research is a lot of testing and prototyping and there isn't always one clear answer."

One challenge is that students haven't been allowed to fail during their education and, as a result, they've been programmed to find the right answer, right away. Both professors hope this Chair will help address this in a positive way.

"We want to help [the faculty] teach students that you have to succeed at the end, not necessarily at the first step," says Dr. Gregson. "That's a reality in engineering, and we want that, it helps us learn and adapt. The information from failures helps you succeed."

Dr. Peter Gregson, electrical and computer engineering, and Dr. Clifton Johnston, industrial engineering, are co-recipients of the NSERC Design Chair.

As Thomas Edison once said: "I haven't failed. I've found 10,000 ways that don't work."

The goal of the chair is to promote innovation through design in the classroom and to help commercialize innovation. As such, the chair serves as a link with industry to bring projects to the classroom.

"The chair is focused on developing a design continuum at the core of engineering education," says Dr. Johnston. "We'll get them to use their skills by giving them real-world problems from day one. This merging of analytical and practical design skills will create better engineers."

With more hands-on, real-world projects students will have more freedom to experiment with their own ideas – and there won't be any answers in the back of the book. On the other hand, industry will have access to ideas and also be able to scout for talent – a "win-win" says Dr. Gregson.

"The students will put their own ideas on the table, build their own prototypes, test their own systems," he says. "If they follow good engineering design process and use good engineering justifications, they can do whatever they want," adds Dr. Johnston.

So what is good design? According to both, it's in the eye of the end user.

"Innovation happens when there is a need," says Dr. Gregson. "Good design requires you to put yourself in the shoes of the customer. Students will have to empathize with that person."

Often times that design is the simplest solution, however, that is rarely the easiest to get to. "To understand a problem, you have to get to where you remove a piece and performance improves. To make a great product you need to get to where if you take one more piece out, the design won't work," explains Dr. Gregson. "That is why prototyping and learning from initial failures is so critical."

Partnerships the Chair hopes to foster extend beyond industry, to NGOs, not-for-profit organizations and charitable groups.

"Today's students are more socially responsible and we should encourage this by helping [these organizations] with their problems," says Dr. Gregson. His classes have also used information brought back by groups like Engineers Without Borders, addressing real-world problems with limited resources, like designing a battery charger for use in a tiny village in Ghana.

Both Dr. Gregson and Dr. Johnston hope to help the faculty educate engineers who will have a broad set of design and analytical skills. "We don't want them to think in terms of one problem, one solution," explains Dr. Johnston. "Students need to know how to design successfully even with the uncertainty of the real-world," says Dr. Gregson.

Solving a sticky problem

Kelvin Sams had a problem. As the owner of Sunrise Foods, packaging millions of cheese-and-cracker snacks every year, he needed an automated process to get the little red spreader stick into the cheese-and-crackers package, a process now done manually. Mr. Sams approached Dalhousie's Industry Liaison and Innovation (ILI) Office and with the office's assistance, was able to come up with a concept that Mr. Sams believed would work.

But, why stop at just one idea? Engineering professor Andrew Warkentin thought this problem would make an excellent class project for his second- year design course students, so he approached Mr. Sams, who was enthusiastic about letting the students work on his company's design problem. So much so, he even supplied material to facilitate the project.

Students were given a box of materials and challenged to design, build and test a machine to put the little red sticks into the plastic snack packs.

"This project was much different than any other one I've had so far at Dalhousie," says engineering student Alistair Wood. "The idea that this was a real-world problem that needed to be solved, and not just some exercise, made it a lot more interesting. It took a lot of trial and error before [the machine] did anything close to what it was supposed to."

Designs ranged in look and operation, as the project allowed for a great deal of creativity.

The group Logan Astle was part of came up with a two-piece robot. One piece consisted of a slanted conveyor belt which oriented and semi-sorted the sticks. The second piece was a slide that stacked the sticks over three other slides, then a trapdoor would open and deposit them. There was also an arm at the top of the slide that was used to move sticks if there was ever a jam. "The final touch to our design was to make it look like a T-Rex eating the bones of another dinosaur," says Mr. Astle.

"Hands-on learning, whether real-world or instructional, is incredibly beneficial to engineers as we need to understand how to build things in order to understand how they work, and vice versa," he says. "Designing and building the robots allowed us to analyze projects by both individual components and complete system functions."

Ryan Gavin, also a student in Dr. Warkentin's class, had similar impressions. "In doing this project we had few guidelines in finding a solution to

"Finding a solution to the given problem required us to be creative and improvise to use the limited given material. And it's cool we [did] this for a local company."

the given problem, it required us to be creative and improvise to use the limited given material. And it's cool we [did] this for a local company."

But how does a project like this differ from traditional textbook problems? Dr. Warkentin says, among other factors, it increases the students' motivation.

"One of the greatest challenges instructors face is convincing students that what they're learning in the classroom is relevant," he explains. "If students think what they're learning is relevant they will be much more motivated to succeed and the resulting learning outcome will be better."

In addition, explains Dr. Warkentin, there is no one right answer for real-world problems, but some answers are better than others. Students learn to deal with insufficient information, resources and time to solve problems and deal with group dynamics. Real-world problems can also have societal, cultural, environmental and professional context.

In the end, the outcome of the project is a win-win for Dalhousie engineering students and for Sunrise Foods.

"Sunrise Foods got the opportunity to see 20 different concepts for solving their problem and they now have a better idea of what might work and what won't work," explains Dr. Warkentin.

"I hope that this experience helps to build students' confidence in their ability to design, work in groups, communicate, build and create. Ultimately I hope my students will experience the same joy that I have in creatively solving tough real world problems – that's why I'm an engineer."

Engineering a better future

Bold Ambitions campaign to enhance Sexton campus

On March 29, Dalhousie took the wraps off the largest fundraising campaign in its almost 200-year history – *Bold Ambitions: The Campaign for Dalhousie.*

The goal of *Bold Ambitions* is $250 million. As Dalhousie President Tom Traves revealed at the campaign launch Dalhousie is well on the way to meeting that goal, with $170 million raised during the "quiet phase" of the campaign.

"We're going to take a really good university and turn it into Canada's very best," said Dr. Traves.

Campaign organizers have identified five themes to advance the university: student success; enriched student experience; sustainable future; health care education; and enhanced design and innovation. This includes innovation and design through team-based collaboration between the Faculties of Engineering and Architecture & Planning.

The money raised will directly benefit students through scholarships and experiential learning opportunities, improve Dalhousie's infrastructure and add more buildings to the Dalhousie landscape, including the IDEA building at Sexton, the Inter-professional Health Education building at Carleton campus and the Dalhousie Arts Centre addition on Studley campus.

The campaign is a major stepping stone to enhancing the Faculty of Engineering and ensuring the proud legacy of educating the country's top engineers. ***(boldambitions.dal.ca)***

More than a great IDEA

New technologies, fresh ideas and design-based work are resources that will keep us at the cusp of innovation. We will rely on a different type of leader – one with diverse skills, knowledge and talents – for our future prosperity.

That is the catalyst for broad sweeping changes within Dalhousie's Faculties of Engineering and Architecture & Planning. There are curriculum changes underway and plans for shared facilities and joint projects.

At the heart of these changes is a stronger affinity to design – the core of innovation. By using design as a problem-solving technique students gain a broader perspective and begin to understand there may be a number of possible solutions.

"Engineers used to be taught that there was only one answer. Now we encourage our students to think bigger picture," says Josh Leon, Dean, Faculty of Engineering. "It's new ideas that translate into ingenuity."

A new facility will bring together related faculties, not just various engineering disciplines.

Coined the IDEA (Innovation and Design in Engineering an Architecture)

Building, it will define the future of engineering, architecture and planning at Dalhousie and is a direct priority of *Bold Ambitions*. It will be a contemporary space to learn the art of design.

"When students from different disciplines share the same workshops and design labs, a cross-pollination of ideas and perspectives happen naturally," says Christine Macy, Dean of Architecture and Planning. "This means a richer education experience. Students will graduate job-ready and go on to become more competent, more capable professionals."

When completed, the IDEA Building will boast enhanced technology, flexible work stations, student work rooms, design labs, common areas, an auditorium and a place to showcase student projects and achievements. It will also have a strong presence in Halifax's vibrant downtown.

Third-year engineering student Shannon Labute is looking forward to improvements the IDEA building can offer. She says space is a huge issue on Sexton campus and last term she took a second-year engineering course located in a medical school building. A new building with more space for engineering students would be "perfect," she says.

"It will be nice to have the new building, with new laboratories and classrooms," says Ms. Labute, 24. "That's going to be pretty amazing."

Education that matters

John W. Lindsay Sr. (BEng'51 (NSTC); DEng'91) came to Dalhousie following the Second World War. He and many other veterans could be seen on campus in their military clothing as they began a new chapter in their lives. For Mr. Lindsay, this meant earning an engineering diploma at Dal and a civil engineering degree at the Nova Scotia Technical College (NSTC). When he completed his studies he had more than a parchment.

Mrs. Marjorie Lindsay, on behalf of the family of John W. Lindsay Sr., makes $1-million gift to Dalhousie

"John graduated with a wife of three years, a six-month-old son and his engineering degree," says Mrs. Marjorie Lindsay with a laugh. They were married 58 years.

Mr. Lindsay founded J.W. Lindsay Construction, whose projects included developing Dartmouth's Burnside Industrial Park and building Purdy's Wharf in Halifax. He was active in his community, in particular, with Dalhousie, the IWK Foundation and The YMCA of Greater Halifax/Dartmouth.

"John had great principles," Mrs. Lindsay says. "When my son gave his father's eulogy he said, 'My father was a man of his word and a handshake was a bond.' I think that says a lot of my husband."

Mr. Lindsay put great stock in education – and the opportunities it provided to learn in and outside the classroom. He deeply appreciated his Dalhousie and NSTC experiences. Mrs. Lindsay says he was somebody who looked to the future, and wanted to "make Dalhousie engineering school the best that it can be."

In his memory, the family gave $1 million in 2008 towards a new engineering building as part of the *Bold Ambitions* campaign with the intent that "other students could profit by the education that my husband had," says Mrs. Lindsay, who spoke at the March 29, 2011, public launch of *Bold Ambitions*.

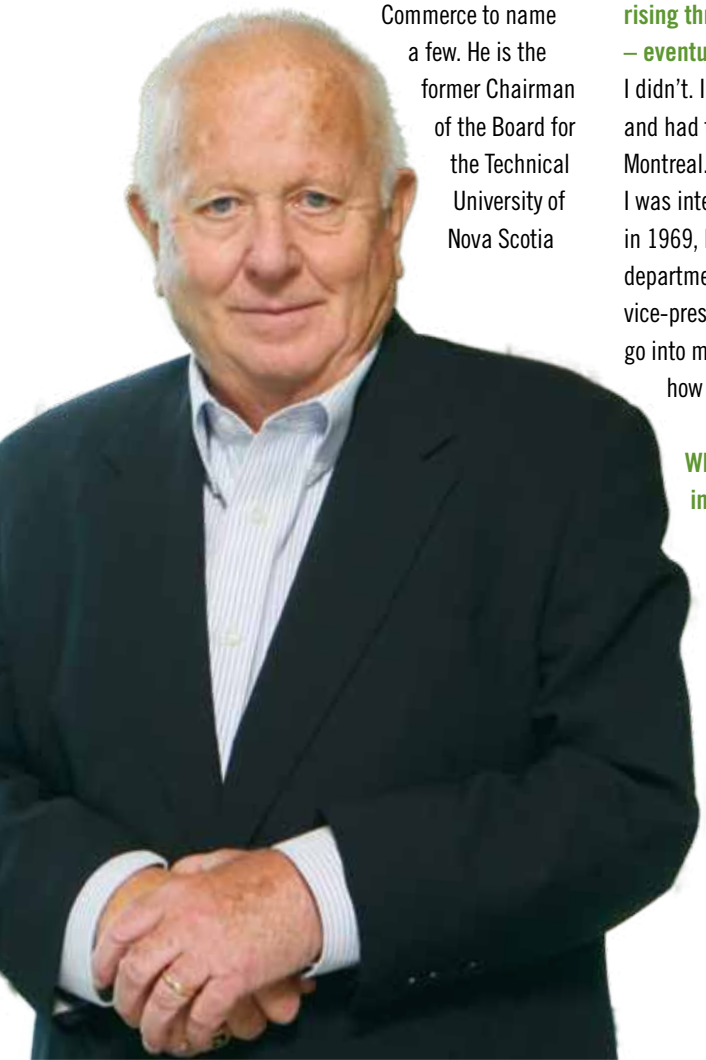
When asked what her husband would think of the gift, Mrs. Lindsay replies: "John was a very humble man. He wouldn't do it for the recognition. He would do it because it came from his heart."

Focused and balanced

Ivan Duvar looks back on a career which spans both engineering and management

Ivan Duvar, (B.Eng'62, (TUNS), LLD'11) the former president and CEO of Maritime Tel & Tel dropped by the Faculty of Engineering to look back at a career that not only helped shape him, but Nova Scotia and the region as well.

Mr. Duvar, who received an honorary Doctor of Laws from Dalhousie at convocation this year, was also Chairman of MT&T after he retired as CEO in 1995, serving until 2000. The lifetime member of the Association of Professional Engineers of Nova Scotia currently serves on the boards of various companies, including Oxford Frozen Foods Ltd. and Wajax Inc. and has served on the boards of Intact Financial, Crossley Carpets and the Canadian Imperial Bank of Commerce to name a few. He is the former Chairman of the Board for the Technical University of Nova Scotia (TUNS) and has served on the Board of Governors at Dalhousie.



Other activities included serving as chairman of the Halifax Board of Trade and the 1996 United Way Campaign and director of the IWK Hospital and IWK Foundation, Symphony Nova Scotia and the Arthritis Society of Canada.

How did you become interested in engineering?

I became interested in telecommunications engineering in the Royal Canadian Signal Corps when I was in the army in Singapore.

When you joined MT&T in 1966 as a transmission engineer, did you envision rising through the company as you did – eventually to President and CEO?

I didn't. I was interested in management and had taken some MBA courses in Montreal. When I came here I told them I was interested in management and, in 1969, I was asked to manage the IT department. I was a bit reluctant, but the vice-president said, "Well you wanted to go into management didn't you?" That's how it all started.

What type of lessons did managing that department teach you in climbing up the ladder at MT&T?

The experiences in management are people oriented. You don't succeed in management unless you develop a team of people who want to work with you. That was something that I was able to do. I also had to learn diplomacy, tact and how to get people to participate. Successful projects are the ones where the end users participate.

You were president of both The Island Telephone Company in P.E.I. and MT&T. What prepared you for those roles?

I had really good people outside of the company working with me. They weren't part of my management team – I called them my "Kitchen Cabinet." There was a PR guy, guys from our law firm, two accountants and more. I tested ideas on them to see what they thought. They weren't working directly for me and brought a whole lot of experience and knowledge. What did I know about buying and selling companies? I took some courses, but my lawyers knew about it, the accountants knew.

How did you deal with the challenges you faced during your career?

There were a lot of challenges and problems, some of monumental nature, short-term and long-term. I used to tell my management team that to succeed we had to stay focused. But you can be over-focused, so I'd say, "You have to stay focused and balanced." When I retired my team gave me a plaque that said "Ivan, stay focused and balanced." I guess they heard me.

Are there any achievements you're especially proud of?

Raising three children to successful adults – that's one. But one of the greatest achievements I was involved in was the merger of TUNS and Dalhousie when I was chairman of TUNS. Enrolment was declining, particularly in Nova Scotia

because of the five-year course compared to four years in other provinces (which I would have known if I had listened to my own son). The best we could get with accreditation was four and a half years. The government wanted us to do something with Dalhousie, and when we looked at it, that was the best option. While a lot of us wanted to keep TUNS, I said 'look, it's not what *we* want, it's about what's best for students.' So I didn't make the merger happen, but I was part of it, and I'm proud of it.

Given your leadership in the telecom sector, what do you think of where it is now? Did you envision the current landscape?

No. For me, the game-changer was the conversion from analog to digital. Digital now drives everything from planes to clocks. We didn't even think about that until the '80s and '90s.

I remember we were nervous when we brought in cellular. It was very expensive and we didn't know if people would buy it, but it took off like a scalded dog. I remember one time walking with my wife in New York and seeing ads for cell-phones at $999. I said to my wife, "they'll be under $1,000 in Nova Scotia soon too." Well, haven't things changed?

There is seemingly no end to your community involvement and contributions. What drives you?

Well it keeps me from being bored, ha! But to some extent it's part of an executive's job. Everyone in Nova Scotia was my customer and part of my job was to be involved, but yes, I guess I did more, but I'm not sure why. I mean, you need to keep your brain active, especially when you retire. Some things I wouldn't do until I retired, because of what's involved, like leading the United Way campaign in 1996.

Your involvement in so many organizations gives you a unique perspective on Atlantic Canada. What are your hopes for the future of Nova Scotia?

I feel strongly about helping Nova Scotia develop. That's why I help out in education. I feel it's critical to advance and build a strong community. Halifax is a great city; just the right size and has the advantages of a big city, but you still know the people. If I'm asked to help in advancing Nova Scotia, I'll probably do it.

Is there anything you do in your spare time that you're passionate about?

One of my hobbies was participating in community activities. It occupied a lot of my spare time and I enjoyed it, meeting people and talking with them.

I was a downhill skier and it was a superb activity for my family and I really enjoyed it. I've been into boating all my life and sailing was a great passion of mine. It was relaxing for me, but I didn't race, I had enough of that at work. Now I have a power boat, but I'm still always on the water, I love the water.

When you reflect on what you've accomplished and all you've done, what do you think about it?

There were so many good organizations that I was involved in with good people. I got a bit of a reputation for bringing companies back to budget stability though, and I would like to think I helped a few organizations. Crossley Carpets is a good example. When I was on the board and we decided to sell it, most companies wanted to buy it, then close it and take the customers. We didn't want to see it leave Truro so we worked and found an American company which would buy it and keep it in Nova Scotia and it's still there today.

Any advice for up-and-coming leaders today?

I don't think I ever dwelled too much on things that didn't work. Just keep one foot in front of the other and keep your nose to the grindstone. Do interesting things and good things will happen.

i-Seismic activity

Looking back, few could have predicted a phone, meant for sending and receiving messages, would be used for science experiments.

But that's exactly what mechanical engineering students at Dalhousie are doing: using iPhones/iPods to study concepts like resonance frequency, damping and quality factor using the iPhone application iSeismometer.

Pioneering this new experiment are professors Ted Hubbard and Darrel Doman. The idea came when both professors expressed their desire to develop a new hands-on lab similar to the one they had jointly developed last year using a Kitchenaid Mixmaster.

"Dr. Doman approached me earlier this term about developing a new hands-on lab," explains Dr. Hubbard. "By sheer coincidence, I stumbled upon the iSeismometer application a few days later. After a week of experimenting with a few Lego and wooden mockups, we quickly applied for a small seed grant from the Dean and Associate Dean. The lab was designed, built, tested and run within about six weeks."

Students sign a consent form, read the short instructions manual and download an app called iSeismometer which uses the built-in accelerometers/gyroscopes on the mobile device. Then they play with it, seeing how gently shaking their iPhone produces a signal. Then, with a rapid prototyped plastic holder attached to a yardstick they cantilever it over the end of the table and flick it. The iPhone records its motion and displays the results in real time. This is repeated for shorter and shorter lengths making the resonance frequency go up. They then email the results to themselves and analyze the data using a supplied Excel sheet.

Several of Dr. Hubbard and Dr. Doman's students agree the iPhone experiment goes beyond just a classroom project and complements the new core

curriculum adopted by Nova Scotia engineering schools last year.

"Labs like this allow students to put the principles they are being taught in class to the test," explains Alex Smith, a fourth-year mechanical engineering student. "We were told at the start of this lab to question why the natural frequency was the square root of stiffness over mass. In the end, we proved the relation."

"This experiment enhanced my knowledge and interest in course material," says fourth year student Curtis Enman. "I think this will give future engineering students a chance to gain a real, hands-on, physical appreciation of the course material."

Although the iPhone experiment has only been done in the mechanical engineering department, Dr. Hubbard believes with the versatility of the iPhone and its applications, several other disciplines could benefit.

"We were just using the accelerometer/gyroscope function," says Dr. Hubbard. "If you use the camera, you could open these types of experiments up to a far wider range of students: chemistry, biology, computer science, etc."

Dr. Hubbard hopes other departments and faculties can conduct these types of labs using their mobile devices in the future. The mechanical engineering students who participated in this lab are grateful for the chance to experience such a leading-edge experiment.

"This was the most impressive experience I've had at Dalhousie," concludes fourth-year student Sebastian Manchester.

Newhook named Dalhousie AVP

Dr. John Newhook, has been appointed Associate Vice President Research at Dalhousie, effective July 1. Working closely with Vice President Martha Crago, he'll help advance Dalhousie's research agenda and provide leadership to Dalhousie's scholarly and scientific community in the development of successful research proposals, productivity and processes.

Head of the Department of Civil and Resource Engineering at Dalhousie, Dr. Newhook is also the Director of the Centre for Innovation in Infrastructure within the Faculty of Engineering and has served as a reviewer for NSERC and CFI grants. With over 20 years experience in structural engineering research and consulting, his research interests are in structural health monitoring, structural analysis and design, concrete structures, bridge engineering,and the use of advanced composite materials.

The founding president of the ISIS Canada Network Association and recipient of several NSERC grants, Dr. Newhook is a member of several technical sub-committees of the Canadian Society for Civil Engineering, a voting member of several committees of the American Concrete Institute, a registered professional engineer and a consultant to the Canadian Highway Bridge Design Code. He is also a founding executive committee member of the International Society for Structural Health Monitoring of Intelligent Infrastructure (ISHMII) which includes leading experts from Canada, US, Europe, Asia and India.

Amyotte is C.D. Howe Chair

Dr. Paul Amyotte, P.Eng, has been named the C.D. Howe Chair in the Faculty of Engineering. A professor in Chemical Engineering, Dr. Amyotte's focus is on loss management, industrial safety and process safety such as the prevention of fires, explosions and toxic releases in the process industries. "This is an opportunity for me to make sustained contributions to process safety research and education," says Dr. Amyotte, whose research is focused on inherently safer design, human error and human factors, and dust explosion risk reduction.

"Teaching-wise, I teach a senior chemical/environmental course on industrial safety and plan to expand my course offerings on industrial safety to other engineering disciplines."

He says the education of safety and loss management is crucial to the engineering profession and needs to be treated as such from day one.

"[Safety] is of utmost importance, however, it is a subject that is often forgotten at the undergraduate level," he explains. "We have taken steps over the years to change that situation within the Faculty of Engineering at Dalhousie."

Dr. Amyotte says he is grateful to the Dean for his support and the many industrial colleagues who have supported his process safety research and teaching endeavors.

Class of 2011

Chemical engineering grad
Laura Payne

Laura Payne came to Dalhousie from Corner Brook, Newfoundland looking for new opportunities. Today, she's a confident engineer, teacher, presenter and humanitarian.

"I always keep my eyes open, and think that's key coming to university and for life in general," she says. "You never know who or what will be around the next corner so you don't want to have your eyes closed."

The 23 year-old chemical engineering graduate compares her studies to complex baking. "You have a cake – the desired product with its given ingredients – and you are given the task of designing the process, the recipe, to get what you want or to work in reverse," she explains. "That's a great challenge and challenges are good."

Her most memorable challenge at Dalhousie was her involvement in Engineers Without Borders, a Canadian movement of professional engineers, students, and overseas volunteer staff.

"My first taste of EWB was at a speaker series with the Co-CEO (now CEO), George Roter and immediately I was interested. They asked me to be involved with the school outreach program which lit the match for me and was where I realized I enjoy engaging audiences. "

As an executive member in EWB, hearing stories from other members piqued her own interest. "From the exposure to people's experiences in Africa I realized I wanted to make my own story."

While the position in Africa with the Dalhousie EWB chapter was already filled, through her eyes-open approach, she saw other opportunities. An active member of her church, where she teaches Sunday school, she traveled as a missionary to teach in Zambia where she also helped her EWB colleagues with their work, immersing herself in the local culture.

"It was cool learning the greetings of the Lunda Tribe seeing the excitement on their face because I took the time to learn it."

Ms. Payne, who loves singing and playing guitar and piano starts work with Shell in Alberta this September. While looking forward to the opportunity – and skiing – she hopes to return to Africa someday. "I'd love to go back. I travel with a purpose. I want to find somewhere I can help out."

Speaking out – a passion for debating

Engineering students carry a heavy workload. So it's all the more impressive that Auyon Siddiq has managed to become one of Canada's best competitive debaters.

"It's the people," he says, when asked about what inspired him to get so involved with Sodales, Dalhousie's debating society. "I've made a lot of friends and it's an amazing community, with people from a lot of different backgrounds, from political science to physics to economics."

Over his five years with Sodales, Mr. Siddiq has racked up an impressive list of accomplishments. He's served as president of both the Dalhousie society and the Canadian University Society for

Intercollegiate Debating (CUSID), which oversees competitive university debating from coast to coast. Competitively, he won the Atlantic debating championship, broke first in round-robin competition at nationals and finished third at Winter Carnival, the largest debating tournament in North America.

"At first I treated debating as a release from school: I could put engineering stuff on hold for a couple of hours and debate policy and philosophy. But by my fourth and fifth year, I began to see them as more complementary. I found my debating skills – making an argument, public speaking, building a case – had a lot of bearing in my other passion."

His engineering degree completed, Mr. Siddiq is choosing to continue onwards with graduate work, seeking his masters degree.

"Dalhousie gave me a real appreciation for how engineering applies knowledge to solve real-world problems, and I'm excited to take those lessons and dive deeper into the research side of the profession."

Class Notes

Ivan Smith, BEng'54 (NSTC), has spent much of his time the past 16 years collecting Nova Scotia history concerning engineering and related technology. You can view samples online at *http://ns1763.ca/radio30/radio-first-30yrs.html, http://ns1758.ca/electric/electric.html*

Gerry Lethbridge, BEng'59 (NSTC civil) writes: "Just a note to mention that wife, Judy and I (who live in Dartmouth) were in Calgary in April and spent a few great hours with fellow '59 civil grad **Gil Frontaine** and his wife Elsie. Both are doing well, and we look forward to seeing them again next year.

Brian Warnock, BEng'69 (NSTC chemical), LLB'76 (UNB) has opened a law office in Prescott, Arizona, which will be managed by his daughter Krista Carman and her husband Andre. Warnock, MacKinlay and Carman also has offices in Phoenix and Mesa. Brian and his wife Wanda spend their time between Wickenburg and Prescott and invite Tech classmates to stop by for a brew or a glass of the grape.

Doug Foran, Dal'68, NSTC'70, is working as a consulting engineer for Arizona Chemical Co. based in Savannah, GA. Doug consults at industrial sites from Oklahoma to Russia and would like to hear from classmates. His e-mail address is *Doug.Foran@yahoo.com.*

Al Cunningham, P.Eng. FCSCE, BEng'71 (NSTC civil) retired in April after 36 years with the City of Moncton Engineering Dept. He is now taking on the full-time duties of husband, grandfather, golfer, gardener and go-for and looking forward to every minute.

Donald J. Peters, BEng'72 (NSTC industrial) is president and CEO of Horizon Health Network, the largest health authority in Atlantic Canada with over 13,000 employees, 1000 Physicians, and over 100 facilities, including 12 hospitals. Mr. Peters has again been chosen as one of *Atlantic Business Magazine*'s "Top 50 CEOs for 2011."

David A. Stewart, P.Eng., BEng'74 (NSTC civil) is married to Anne-Marie Bolger, and is president of DASCO Equipment Inc. in Charlottetown, P.E.I. Friends can get in touch at *dasco.dave@gmail.com*

Judy Quathamer, BSC'76, BEng'78 (NSTC industrial) and **Arlene (Crossman) Savard**, BSc'77 are both inhabitants of the Greater Edmonton Region where, unlike the GTA, there are still 26 separate communities. Judy retired from the Canadian Forces in 1991. Arlene started with Poole Construction for a summer job between school years and has worked in the hospital construction field since moving to Alberta. She is currently employed as a capital equipment procurement officer with Alberta Health Services. Both have family – including grandchildren – living nearby. "Hello Caroline and Paul Smith! Still have fond memories of your wedding day."

Linda Lefler, BEng'85 (TUNS industrial) has started an information management business, Lefler Information Services. She specializes in book and database indexing, research and project management; visit *www.lindalefler.com.* "At the IE reunion last summer, we all agreed that we should get together more often. This is a reminder to IE's living away to let us know when you are in town to see if we can organize a get-together."

Mildred Medsah would like to wish Food Science Class of 1988 a great year, and would like to be in touch with any grads from the class. Mildred can be reached at *mildemencon@yahoo.com*

In Memoriam

Max Fishman, BEng'35 (NSTC), Halifax, N.S., on March 1, 2011

A E Marston Cameron, BEng'48 (NSTC), St. John's, N.L., on November 23, 2010

Francis Lawlan Wallace, BEng'49 (NSTC), Ottawa, Ont., on November 13, 2010

Robert Hall Clawson, BEng'49 (NSTC), Halifax, N.S., on December 29, 2010

Harold Guy Rounsefell, BEng'49 (NSTC), Halifax, N.S., on February 5, 2011

William Earle MacDonald, BEng'50 (NSTC), Charlottetown, P.E.I., on November 10, 2010

Douglas Lawson Sarantos, BSc'50, BEng'53 (NSTC), Kingston, Ont., on January 1, 2011

Herbert Clarence Kingsbury, BEng'53 (NSTC), Portuguese Cove, N.S., on February 26, 2011

Henry Thaddeus Bodurka, BEng'56 (NSTC), Alamo, Calif., on February 14, 2011

John Joseph O'Connell, BEng'57 (NSTC), Gloucester, Ont., on December 10, 2010

Vernon Donald Conrad, BEng'61 (NSTC), Dartmouth, N.S.

Herbert Ansley Marshall, BSc'41, BEng'43 (NSTC), DEng'87 (TUNS), Goderich, Ont., on March 2, 2011

Paul Edward Mason, BEng'88 (TUNS) (industrial), Bedford, N.S., 47, passed away in December. Paul was employed as a national supply chain manager for Frito Lay Canada. His obituary was published in the *Chronicle Herald* on December 12, 2010.

Class Notes

Grenville Phillips BSc, BEng'91, MASc'98, MURP'98 recently returned from his fifth deployment to Haiti following the 2010 earthquake, where he, *inter alia*, trained Haitian engineers to assess the safety of buildings and to supervise effective repair and strengthening measures. He is a fellow of both the Institution of Structural Engineers, and the Chartered Institution of Highways and Transportation. He has practiced civil, structural, environmental, and transportation engineering in the Caribbean for the past two decades, and is the author of two books, *Brothers Kept Apart*, and *Solving the Arab-Israeli Conflict*.

Sarah L. F. Devereaux BEng'93, MEng'99 has been named the first woman president of the Consulting Engineers of Nova Scotia. She is senior environmental engineer at the Halifax office of Dillon Consulting.

Michael Mahoney, BEng'95, MASc'97 (TUNS civil) was recently promoted to director of admixture and fiber marketing for Euclid Chemical (Cleveland, Ohio) and was recently elected as president of the Fiber Reinforced Concrete Association. "My wife Cynthia and I have been living here for eight years since relocating from Halifax where I was actually working as a researcher at Dal."

Please send **Engineering Magazine** Class Notes and In Memoriam notices to jenn.godbold@dal.ca.

Alumni Events

Calgary Alumni Visit – May 2011

Upcoming Events

Please visit www.alumni.engineering.dal.ca/Events for a complete and up-to-date list of events.

Third Annual

Engineering Golf Tournament

Monday, September 12, 2011
Glen Arbour Golf Course.
40 Clubhouse Lane, Hammonds Plains, N.S.

Hosted by **Chuck Hartlen**, BEng'83, (Electrical)

NSTC

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For more information and to register online, please visit
engineering.dal.ca/golf
Contact: Jennifer Godbold
Tel: 902.494.3158 or jenn.godbold@dal.ca

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