

M A K I N G T H E C O N N E C T I O N

Programs recognize future engineers and
boost understanding of P.Eng. licence



by Karen Hawthorne

PEO is taking action to recognize the engineers of the future—and connect them with the professional engineering community. The innovative Student Membership Program (SMP) has increased its numbers by 65 per cent in the past year. The Engineering Internship Training (EIT) Program has about 3000 Engineer Interns (EIs) registered to link to the profession and to help ensure their engineering work meets the experience requirements of licensure. Ontario government ministries and private corporations are developing their own formal engineering development programs to regenerate their workforce with EIs on track to becoming professional engineers. These initiatives are key to creating awareness about PEO as the profession's regulatory body and demonstrating the relevance of the P.Eng. licence. Here's a look at why these voluntary programs are gaining ground and making a connection.

Kimi Sokhi is a fourth-year student at the University of Western Ontario, pursuing a double degree in software engineering and visual arts. She isn't certain where her future career path will take her, although she has already spent a summer in India designing a corporate website.

One thing, she says, is for certain: getting her P.Eng. licence. "Basically, I want to belong to a professional community," says Sokhi, 21. "When you graduate, you become of a certain stature. It's important to be part of a professional organization, to add to your qualifications by becoming a P.Eng. And it's important to have that sense of community in every profession—to work toward a common goal."

Sokhi practises what she preaches. She is an advocate for regulation in the software engineering field—one of the challenges for PEO as it strives to define scopes of practice and ensure that the public is protected in emerging disciplines of engineering practice.

Concerned about academic and career opportunities for students in the new software engineering program at the universi-

ty, Sokhi formed a software engineering council for students on campus last April.

As council president, her first objective is to organize an industry banquet for the spring with representatives from industry to talk about new technology and career opportunities – and a PEO representative to speak about legislative issues including licensing. In many ways, she says, her goals are similar to the goals of PEO – to create awareness about the regulated profession, and new developments affecting it.

"Once you graduate, it's essential to know the legal ramifications of our work," she says. "Everything has a guarantee out there, except software. We want to create quality products and engineer quality software. Really, we are like mechanical and civil engineers, we're providing a public service."

Sokhi has already established her link with the profession as a member of PEO's Student Membership Program. Launched in January 2000 to connect students to PEO and bolster awareness about the importance of getting licensed and how to go about it, the pro-

gram now has 5500 students on board—an increase of 75 per cent compared to a year ago. That number represents about 25 per cent of the undergraduate population at Ontario's 14 engineering schools. "It has a lot of advantages," Sokhi says of the SMP, such as distribution of *Engineering Dimensions* magazine and *The Link*, accessible information on its own website (www.engineeringstudents.peo.on.ca), including information about licensing and details regarding PEO's pregraduation experience. Undergraduate engineering experience (co-op, internship, summer work, etc.) may be considered for up to 12 months credit towards the experience requirement for licensing under certain conditions.

As an SMP member, "you can attend PEO chapter meetings, get exposed to professional engineers, make contacts and start networking," she adds.

New developments are underway to improve the SMP and build on its growing membership. The driving vision of the SMP, from the beginning, was to establish a seamless process for engineering students to move toward licensure. The next step in the works is to establish the official recognition of engineering students within the legislative framework of the *Professional Engineers Act*.

"We want to formalize the student members' connection with PEO," says PEO's Tom Chessell, manager, volunteer programs. "We want to show them that they are recognized as part of the engineering profession and, as SMP members, they are on the continuum toward licensure," participating first as students, then as EIs. Including student members in the Act, he says, will demonstrate to students that they are important to the future of the profession

and officially recognized by PEO as being on the road toward licensure.

The longer term objective of the SMP is integration with academe at the faculties of engineering to help close the loop between engineering education and professional licensure. One potential initiative could be for Canadian Engineering Accreditation Board requirements to include a mandatory structured course that deals with ethics, the legal implications of professional engineering work and professionalism issues. PEO would have an official role in the delivery of some components of these courses.

Currently, a PEO representative might make a presentation to engineering students about PEO, professional licensure, the EIT Program and the SMP at the discretion of an individual professor, but there are no requirements mandating that PEO address all engineering students at particular points as part of the curriculum.

Each engineering school has an SMP student and faculty representative linked to the Engineering Society and SMP faculty advisor appointed by the Council of Ontario Deans of Engineering (CODE). These individuals communicate with students, promote the SMP and keep the lines of communication open with PEO. Given the rising numbers, the support from engineers and students is paying off. An SMP Student/Faculty Liaison Task Group comprising the SMP faculty advisors and students who sit on the Engineering Student Societies Council of Ontario (ESSCO) was created to meet and discuss student and faculty feedback on the program and suggestions for improvement.

"It's important for students to get involved in the SMP, to be exposed to the profession and have the mindset that in a few years they are going to be out in the workplace and expected to do professional quality work," says David Junker, a third-year student in aerospace engineering and the SMP student representative at Carleton University. The SMP is one of the sponsors of Carleton's frosh-week events, targeting first-year engineering students to sign up. Information flyers about joining SMP are posted around campus throughout the year.

"The SMP opens doors to PEO and understanding the way the profession is structured," Junker, 21, says, adding he fully intends on working toward his licence after graduation: "Having the P.Eng. lends credibility to your work and makes you a professional engineer."

According to Richard Zytner, PhD, P.Eng., the SMP is making inroads to ensure that the value of the P.Eng. is not lost on students. As the acting dean of engineering at the University of Guelph, and the faculty representative for the SMP at the university, he's proud of the fact that his school has one of the highest percentages of undergraduate engineering students—about 51 per cent—registered in the SMP.

"We're high because we take the P.Eng. licence very seriously," says Zytner, acknowledging the school is one of the smallest in Ontario. Courses are taught by professors who have industry experience and act as professional role models for students. Core courses involve cross-disciplinary group design projects and instil the importance of a common code of professional ethics and regulations to follow. A final-year project also incorporates working with a multi-disciplinary group to simulate real-world experience and demonstrate the need for professional guidelines and responsibility to the public and colleagues. The SMP helps students inform themselves about the profession and their professional obligation and responsibilities when they graduate, Zytner says.

When it comes to demonstrating relevance, the problem in emerging disciplines is industry buy-in and support for the P.Eng.

licence. In Zytner's field of civil and environmental engineering, for example, companies look to hire professional engineers or pay for employees to apply for licensure and reap the benefits of a pay raise and mobility within the organization.

But if a graduate is working for a company in systems and computing—and not lured to pursue a P.Eng. by cash or other incentives—does it matter?

Zytner's response is emphatic: "I don't think an engineering career is finished until you are a P.Eng. It's a ticket to mobility," he says.

Gerry Meade, P.Eng., PEO manager, engineering internship training program, agrees. He's taken calls recently from electrical engineers who've worked in the IT sector for 10 years until the market downturn this year. Now they're looking for employment and realizing that they need their P.Eng. licence to meet job qualifications.

"Our objective is to encourage engineering grads in all disciplines to apply for licensure and work to establish PEO's presence on university campuses," says Meade. "We're doing that." An intermediate step along the transition from SMP member to licensure is the Engineering Internship Training Program (EIT), a program designed to help people applying for licensure ensure they're on track to fulfilling the experience requirements. What makes the program valuable?

Participants visibly link themselves to the profession with the EIT title they can use after their name, says Meade. They receive PEO publications, including *EngineerMENTOR*, geared toward EIs to keep them connected and informed about the profession. They can have their experience record reviewed annually by PEO to confirm that it is on track to meeting licensure requirements that include 48 months of acceptable experience. As for all applicants, a professional engineer who personally knows the individual's work and takes responsibility for it must verify work periods. EIs can also access the Ontario Society of Professional Engineers career centre and online job postings.

"It's a way to get involved in the profession and understand what's expected of you," says former EI Laurel Williams, P.Eng. Williams received her licence in November after completing her Masters of Engineering Science from the University of Western Ontario under the mentorship of Ron Eagleson, PhD, P.Eng., a UWO professor of electrical engineering, and Deborah Fells, PhD, P.Eng., who headed the Pebbles project at Ryerson University. Williams' work experience included Pebbles, a videoconferencing robot for kids in hospital to stay connected with their classmates and continue schooling.

"The people I worked with were fantastic. I was always being challenged and learning," says Williams, now in research and development at the Resource Centre for Academic Technology at the University of Toronto. She develops software and hardware for people with disabilities and is currently working on a website for kindergarten teachers to screen students for learning disabilities.

"Some people may say, 'I have to get a licence to get a raise or to stamp something,'—but I don't need it for either of those things," says Williams. "I have to see the P.Eng. after my name because it says that I am an engineer and I have accomplished



EIT brochure created by PEO in December 2000 has reached over 4000 engineer interns since its distribution

something that is recognized by society."

PEO has about 3000 EIs registered, representing between 25 to 33 per cent of current applicants for licensure—a number that is expected to rise with the development and promotion of company-sponsored EIT programs and the development of a related mentorship program. Both these initiatives are part of PEO's strategic plan to bolster its profile and demonstrate the rele-

vance of the P.Eng. licence. Details of these initiatives are still in the draft stages and will be unveiled shortly.

Ontario ministries and larger private corporations are developing their own formal engineering training programs—and have contacted PEO to make sure their programs for EIs will meet the experience requirements for licensure. In a competitive marketplace, companies want to attract the best people, keep them on staff and groom them for key positions in the organization.

As its workforce ages, Ontario Power Generation resurrected a formal two-year EIT program in May 2000 to rejuvenate its ranks with well-qualified individuals. "This program teaches them hands-on learning and understanding accountability," says Heather Murch, MBA, P.Eng., senior training officer, Ontario Power Generation. "They have to manage their own budgets and manage their time to meet deadlines."

EIs perform class and field work, and are linked to personal mentors at the organization's senior management level to document their training objectives, offer guidance and allow senior managers to see who's coming into the organization and what roles they might fill in future.

Falconbridge Limited, one of the world's largest mining corporations, launched its formal Mining Engineer Development Program (MEDP) in May 2000 to give participants the experience and training they need to develop the skills required to support company growth.

New engineering graduates gain experience in all aspects of mining engineering and operations, going underground to work in the different areas, such as production mining, driving the tunnels, working with the mechanics, and working with the electricians, says John Vary, P.Eng., superintendent mine engineer service, Sudbury division.

The program is a way to ensure that all Falconbridge employees have the opportunity to move around to different locations and operations, and have the same opportunity to develop their skills. "It's a great place to learn," says Peter Xavier, EIT, a 24-year-old mining engineering graduate from Laurentian University who's now working at Falconbridge's Sudbury division. "Mining is unique and managers don't always see the practical application of their designs. We actually get a chance to work underground and see how things are really done."

Like many others, Xavier says the EIT program will make a significant difference in his engineering career—and he's definitely planning on getting his P.Eng., because "it says to everyone that you are a professional engineer." ◆

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SMP poster and brochure used to promote the program on university campuses.