

TISED joins proud list of Engineering Faculty institutes

S U S T A I N A B I L I T Y T H I N K T A N K C R E A T E D

Lorne Trottier initiative helps McGill Engineering to provide additional intellectual leadership and promote university outreach and public interaction.

The Faculty of Engineering created a powerful tool in the fall of 2012 to enable our professors and students to influence public policy in the area of sustainable engineering and design.

Called the Trottier Institute for Sustainability in Engineering and Design (TISED for short), the new Institute will have far-ranging impact, both in broadening students' knowledge and in serving as an influential, independent, fact-based think tank to better inform and educate decision-makers and the public about sustainability issues.

The interdisciplinary Institute was established through a \$10-million gift from alumnus Lorne Trottier (BEng'70, MEng'73, DSc'06) and his family. It



Mechanical Engineering Professor Jeffrey Bergthorson is one of three dozen researchers at McGill Engineering whose work encompasses aspects of sustainability.

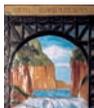
He is seen here in the Macdonald Engineering Building's Alternative Fuels Laboratory analyzing how biofuels can be used to power next-generation engines.

The work Bergthorson and his colleagues are doing will inform other research about how best to integrate alternative fuels into transportation and power-generation systems, and help to develop new engine designs that improve efficiency and reduce emissions.

builds on an existing sustainability endeavour at our Faculty called ISEAD (Institute for Sustainability in Engineering and Design) that was launched in 2010 with support from alumnus Ram Panda, MEng'71, MBA'77.

All of ISEAD's programs and activities have been incorporated into the new, broader-based Trottier Institute, and ISEAD's Director, Electrical and Computer Engineering Professor Geza Joos, has been named Director of TISED.

McGill Engineering has been privileged to work with researchers and units across McGill for many years to develop principles of sustainability in engineering and design, but the new think tank will add multiple dimensions to that work.



McGill

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Sustainability will be one of engineering's main themes in the 21st century

TISED will provide tremendous impetus to professors and students who want to play a meaningful role in influencing public policy.

Among other things, TISED will publish white papers—on both global sustainability issues and topics related to federal and provincial sustainability policies—and it will forge a close partnership with Montreal's École Polytechnique, which has a major program devoted to sustainable energy practices.

Collaboration between the two engineering schools will include an annual public symposium that will focus attention on the relevance of

McGill Engineering's sustainability and design initiative includes:

- working with existing academic units to create new courses and programs that focus on sustainability principles and practices
- encouraging summer research and industry internships
- hosting a distinguished visiting speaker series
- running a summer school in Engineering and Design for Sustainability that is open to students as well as industry and government employees
- encouraging undergraduate design and research projects

sustainable engineering and design to people's lives. The symposium's themes will be determined by McGill Engineering one year and École Polytechnique the next. The venue for the event will also alternate between the two campuses.

TISED's priority research areas have been identified as energy (particularly renewable energy with a strong focus on electricity); photovoltaics and clean combustion; sustainable manufacturing; green information technologies; green aviation and sustainable urban transport and urban development.

Multi-faceted approach

Funds from the Trottier gift have been allocated in ways that will enable TISED to benefit professors, graduate students and undergraduates alike.

The diverse elements of the gift include an Endowed Chair; a Scholars-in-Residence program; administrative support for teaching and research projects; Faculty Scholar Awards to attract and retain outstanding junior professors; master's and doctoral fellowships; Summer Undergraduate Research in Engineering (S•U•R•E) Awards; and support for undergraduate student competitions and design projects.

Specifically, the Institute will provide administrative support to help professors obtain matching funds from external sources; form partnerships with industry, national laboratories and foundations; work with other Quebec universities, such as École Polytechnique, to develop joint programs; share best practices; promote student interaction and choose research areas with a public policy dimension.

Particular attention will be paid to the work of junior faculty—rising stars



Another researcher working in the area of sustainability is Civil Engineering and Applied Mechanics Professor Marianne Hatzopoulou. She has wide-ranging research interests, but a common theme of her work is supplying accurate data to elected officials and other policy-makers to enable them to make informed decisions.

She leads an interdisciplinary team of engineers and health scientists that was recently awarded a three-year, \$450,000 Collaborative Health Research Projects grant from the federal government.

The team will examine means to reconcile the divide between urban policies that promote active transportation, and health objectives which call for minimizing the exposure of Canadians to air pollution.

Sustainability will be one of engineering's main themes in the 21st century

with the potential to make important contributions.

In terms of undergraduate education, the Institute's mission will complement current and planned initiatives at the Faculty to ensure that sustainable engineering components are present in all of McGill Engineering's undergraduate programs. There are plans to develop a Minor in Sustainable Engineering, new Impact of Technology courses and pilot projects and case studies to help all professors incorporate sustainable engineering concepts into their teaching and research.

The benefits for graduate students include a proposed Professional Master's Degree in Sustainable Engineering and activities to enable TISED Fellows to interact as a true community of scholars.

It will take approximately five years for TISED to become fully operational. At a time when every dollar Quebec universities spend is being rigorously scrutinized, both Mr. Trottier and the Faculty have taken exceptional care to prepare a balanced, five-year budget.



Environmental Engineering Master's student Miriam Lebeau is researching processes that could transform liquid waste into value-added by-products.

TISED will work with other McGill units, Canadian and international universities, relevant professional bodies and federal and provincial government agencies and departments to promote informed discussion.

No infrastructure costs are foreseen, for example; TISED will be housed in space originally provided for ISEAD. Precise benchmarks have also been agreed upon to assist in the Institute's management and to help gauge TISED's short- and long-term success.

In addition, part of Mr. Trottier's gift has been set aside as leverage funding—a strategy to attract matching support from other generous donors to support specific areas of TISED's mandate (see article below).

MATCHING FUNDS DOUBLE YOUR GIFT'S IMPACT

The matching funds included in Lorne Trottier's exceptional \$10-million gift to the Faculty of Engineering are an incentive to encourage new donors—or existing supporters who want to increase their giving—to establish named endowments that will generate income in perpetuity to strengthen our Faculty's programs and services.

By taking advantage of these matching funds, alumni and friends can double the impact of their

contributions, thereby helping the ultimate beneficiaries—current and future generations of McGill engineering, architecture and urban planning students.

Endowments that benefit from this 'leveraging process' are named after the individual who establishes the endowment, not the donor who originally provided the matching funds.

In the case of the new sustainability institute, Mr. Trottier set aside \$1.25-million in matching funds to

encourage other named donors to support Faculty Scholar Awards, graduate fellowships, Summer Undergraduate Research in Engineering (S•U•R•E) Awards and student design competitions.

If you would like more information about the Trottier Matching Funds program, please contact McGill Engineering Development Director Krish Dasgupta at 514-398-2016 or krishanu.dasgupta@mcgill.ca



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