WESTERN ENGINEERING

Western Engineering Strategic Academic Plan

Engaging the Future

Update

2011 - 2014

The University *of* Western Ontario

Western

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Executive Summary

The next decade is an important period for Western Engineering, bringing both exciting opportunities and significant challenges.

Countries around the world seek the solutions of engineers to address important issues such as the effects of an aging population, improving health and environment, and finding sustainable solutions to our needs for water, energy, and infrastructure.

It is through exceptional undergraduate teaching and internationally recognized research that Western Engineering will prepare leaders to engage and address these issues in industry, government and academia around the world.

Our overall mission is to become one of the leading Canadian research-intensive Engineering schools, internationally recognized for the excellence and impact of its research and for providing students with high quality enriched undergraduate and graduate programs.

Our key goal in undergraduate studies is to prepare our students to become global minded leaders by expanding related curriculum offerings, internationalization activities, and enriched education outside the classroom.

Western Engineering is proud to offer an undergraduate program that is more than a traditional engineering degree. We offer students *Western Engineering Plus* - a diverse array of opportunities including a common first year, nine engineering programs, plus dual degrees with the Richard Ivey School of Business, Schulich School of Medicine & Dentistry, Western Law, in addition to concurrent degree programs with other Faculties across campus. Students can also gain real-world knowledge with opportunities such as co-op and internship, Accelerated Master's programs, international exchanges, plus numerous leadership opportunities.

In 2010, Western Engineering ranked among the top schools in Canada in the *Globe and Mail's Canadian University Report for Engineering and Technology*. We are proud to offer students the best engineering student experience in Canada and are committed to continuing this success by increasing numbers of, and opportunities for, women in engineering, more hands-on experiences, and research opportunities at the undergraduate level.

Our effort to offer the best engineering student experience in Canada does not stop at the undergraduate level. We are also committed to maintaining the highest quality and standards for graduate studies and research excellence. We will continue to look for partnerships with industry, international institutions and government agencies. This will provide us the fundamental and practical knowledge to further our understanding, disseminate new knowledge through peer-reviewed publications, and develop competitive strategies for supporting commercialization.

Achieving research excellence is core to the academic aspirations of our Faculty and to develop our external relations. We are proud to support the academic freedom of our individual faculty members to pursue research in the sector of their choice. We currently have strengths in areas varying from biomedical engineering to fluid mechanics to information engineering.

Western Engineering is internationally recognized for wind engineering, with over 45 years of individual faculty expertise, groups and projects such as the Boundary Layer Wind Tunnel Laboratory (BLWTL), Insurance Research Lab for Better Homes and the new Wind, Engineering, Energy and Environment (WindEEE) research project and facility.

With escalating concerns about climate change and the need for green technologies, Western Engineering is focusing efforts on building a sustainable future with specializations in water engineering, environmental remediation, nanotechnology, natural disaster mitigation and management, power systems, biofuels and alternative energy systems. Research groups and institutes focusing on these areas include Western's Power Systems Engineering Group, Particle Technology Research Centre (PTRC), Chemical Reactor Engineering Centre (CREC), Geotechnical Research Centre (GRC), Research for Subsurface Transport and Remediation (RESTORE), and the Institute for Chemicals and Fuels from Alternative Resources (ICFAR), just to name a few.

Our faculty, staff and students continuously work towards building a better world. In the next five to ten years we look forward to expanding our work in this regard by creating unique facilities to house our leading-edge research at locations such as the Advanced Manufacturing Park, where we have already developed plans for WindEEE and the Composites Research Centre.

In order to be successful in any of these areas we must connect Western Engineering with the world and bring the world to Western. Our impact in strategically important areas must be at an international level to maintain our abilities to recruit the best students and faculty members from around the globe.

To achieve success in this regard we will focus our recruitment efforts on bringing the best international undergraduate and graduate students to Western Engineering and promote more faculty visits by prominent international academics and industry leaders. We will also encourage, and support, our current faculty and students to pursue international exchanges and research collaborations with institutions around the world.

Our goals are ambitious, but achievable, as long as we continue to foster a respectful workplace for our faculty and staff - who are the core strength in our creative and educational endeavors and service.

Together, as a collegial team, we will work towards expanding the use of information technology in e-learning, effective communication, and technology delivery to meet the ever evolving technological needs and services. We will also work together to build on current relationships with industry, alumni, and friends, while fostering new partnerships to better serve our faculty, staff, students and community.

Western Engineering is a medium-size Faculty with an ambitious drive to become a leading Canadian research-intensive engineering school. To learn more about our specific goals and action items, continue reading through this strategic plan.

Strategic Planning Process

The strategic planning process began in August 2009 with a Western Engineering Leaders' Retreat. The meeting provided reflections on progress towards the 2006-2010 Strategic Plan. Working groups, which included faculty, staff and student representation, focused on the following key areas:

- Undergraduate Education
- Graduate Education
- Research
- Human Resources
- Information Technology and e-Learning
- Internationalization
- Outreach: Alumni, Advancement, Commutations and External Relations

The working groups were asked to examine their portfolios from the following perspective:

- Current situation and key baseline data
- Goals, strategies, and action plans
    - Goals: high level aspiration of what is needed to move forward
    - Strategies: how the goals are to be achieved
    - Action plans: tasks needed to implement and measure activities
- Priorities and timelines
- Assessment (performance indicators)
    - Activities undertaken
    - Impact measures

Preliminary reports were presented to the Advisory Council for Western Engineering (ACWE) in June 2010, which provided valuable feedback to the preliminary ideas the working groups had developed.

After incorporating feedback from ACWE, the draft strategic plan was presented to all Western Engineering faculty and staff members at Faculty Council on December 16, 2010.

Immediately following Faculty Council, the plan was posted on Western Engineering's Faculty & Staff Intranet for viewing.

In-person consultation meetings were scheduled weekly between January 20 and February 18, 2011. Comments were recorded and emailed to the Dean for consideration in this final strategic planning document.

Faculty, staff and students also had the opportunity to provide feedback online, between January 28 and February 18, 2011 via a WIKI that was developed specifically for strategic planning purposes.

Context

Engaging the Future, Western's Report of the Task Force on Strategic Planning, was approved by Senate in October 2006 and the Board of Governors in November 2006. The document was published in its final form in January 2007.

Western Engineering Strategic Academic Plan

Undergraduate Education

Western Engineering is committed to providing the best undergraduate student experience. We are proud to offer an undergraduate program that is more than a traditional engineering degree. We offer students *Western Engineering Plus* – a diverse array of opportunities including a common first year, nine engineering programs, plus dual degrees with the Richard Ivey School of Business, Schulich School of Medicine & Dentistry, and Western Law, in addition to concurrent degree programs with other Faculties across campus. Students can also gain real-world knowledge with opportunities such as co-op and internship, Accelerated Master's programs, international exchanges, plus numerous leadership opportunities.

There is broad consensus from Western Engineering faculty, staff and current students that *Western Engineering Plus* is a good concept to continue building upon; however, we need to package and promote the concept more effectively so there is a clear differentiation of what Western Engineering has to offer undergraduate students compared to other engineering schools.

Western Engineering is a medium-sized Faculty, in comparison to other universities in Ontario, with approximately 1,200 undergraduate students. In the coming years, we plan to increase our undergraduate student complement to approximately 1,400 students by 2016. With these numbers in mind, we need to take a comprehensive look at the number of programs we currently offer our students. Reviewing our programs will help us determine if we are offering the appropriate number of programs, which are sustainable in terms of student demand, resources required and program quality for our students.

A key goal for our undergraduate program is to provide an enriched experience beyond the classroom. Our students are some of the most active students on campus in terms of extracurricular activities. We need to support our students more in this regard and offer more opportunities for leadership experiences at the undergraduate level with investments in our undergraduate laboratories, internship and co-op experiences, and support for student clubs, groups and teams. More research opportunities at the undergraduate level would also be beneficial to the students, and support Western's mission to be research-intensive. Western Engineering is also committed to developing global minded leaders by expanding related curriculum offerings, internationalization activities, and enriched education outside the classroom.

GOAL: Develop global minded leaders by expansion of related curriculum offerings, internationalization activities, and enriched education outside the classroom.

OBJECTIVE: A minimum of 25% of our graduates to have international experience by 2015.

Actions:

- Provide well structured international exchange opportunities through the WE Go Global certificate program.
- Provide program support for undergraduate international activities through the International and Recruitment Coordinator.
- Increase and support initiatives such as Engineers without Borders.
- Provide funding to support Western Engineering professors to visit alumni at their home institutions to give guest lectures and investigate exchange program opportunities.
- Invest in career development services, internship opportunities and support for co-op education.

GOAL: Increase numbers of, and opportunities for, women in engineering.

OBJECTIVE: Achieve the highest proportion of female engineering students in Canada.

Actions:

- Increase the number of female faculty members and role models.
- Encourage current undergraduate female engineering students to be role models for high school and elementary school outreach programs.
- Utilize the work-study program to enhance outreach activities for recruitment.
- Emphasize programs/options which are more attractive to women in engineering (for example: Biochemical Engineering, Biomedical Engineering, Environmental Engineering, International Development, Management, etc).
- Maintain and enhance existing activities such as Women in Engineering, Go ENG Girl, outreach with Girl Guides, etc.
- Continue to emphasize and support increased enrolment of female engineers however focus more on how the engineering profession in general is helping to make a difference around the world.
- Provide more information on the profession and pathways to engineering at elementary and high schools.

GOAL: Have the most effective common first year experience in Canada which prepares students for his or her discipline of choice.

OBJECTIVE: Improve the quality of the feedback reported by Western Engineering students on the First Year Survey and Survey of Graduating Students in questions related to the overall satisfaction with education received.

Actions:

- Improve in all categories of the surveys, specifically:
  - Target 90% to score a 4 or 5 when asked the question "Would you recommend Western to a friend?"
  - Target 80% to score 4 or 5 on "Overall satisfaction with education received."
- Encourage more Western Engineering students to participate in the surveys, to increase the number of responses, providing a more accurate reflection of our current program.
- Respond to the survey feedback in a timely manner to address issues or concerns.
- Setup a task force to review, design and implement our first year program delivery and content.
- Enhance student support and retention through counselling, mentoring and peer programs.
- Provide high quality teaching delivery and support.

GOAL: Invest in strategies to enhance teaching excellence and the learning experience.

OBJECTIVE: Improve the quality of undergraduate teaching in Western Engineering as measured by course evaluation scores and student feedback.

Actions:

- Celebrate teaching excellence through more awards. Recognize outstanding teaching assistants.
- Offer courses and training support to faculty for research and teaching skills.
- Provide mentors to junior faculty members.
- Involve more Teaching Support Centre related seminars and activities (at least one per term).
- Emphasize the importance of teaching in the hiring process for faculty members.
- Provide appropriate tools and resources to support undergraduate courses, as well as continuity of course materials from instructors.

GOAL: Enhance opportunities for undergraduate students to increase knowledge of applied research in Engineering.

OBJECTIVE: Increase student enrolment in graduate programs and summer research experiences.

Actions:

- Encourage more Western Engineering students to apply for the NSERC USRA program.
- Provide opportunities and encourage instructors to highlight their research activities during lectures.
- Emphasize TA's research activities during classroom participation.
- Promote the Accelerated Master's program to our undergraduate students.
- Use case based learning in fourth year classes and suggest this method of teaching for earlier years to encourage research and discovery.
- Use WORLDiscoveries for examples of design projects for capstone design courses.
- Provide more options for capstone design to allow students to choose their projects.

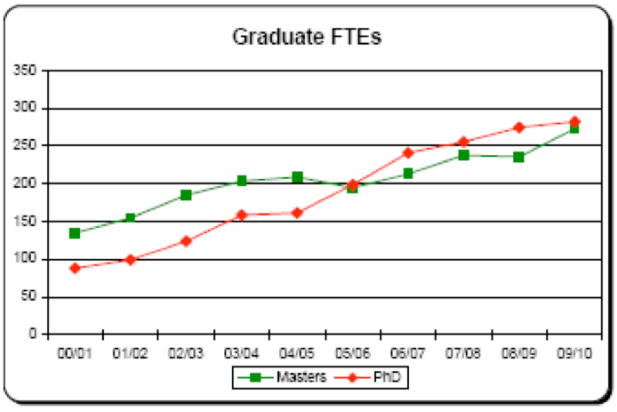
GOAL: Use appropriate information technologies in teaching.

OBJECTIVE: Increase the use of technology in the delivery of course instruction in the classroom and on-line in order to remain current and competitive in the ever changing IT environment.

Actions:

- Use community/collaborative learning environments.
- Incorporate awareness of information technologies in teaching.
- Develop standards for best practice for IT in the classroom.
- Incorporate the use of student owned mobile computing in the learning environment.

Graduate Education



The Faculty has seen a remarkable increase in the number of graduate students in the past decade: from less than 100 PhD students in 2000-01 to more than 270 PhD students in the 09/10 academic year.

We have seen a similar rise in MESc and MEng students as well: from 140 MESc and MEng students to more than 260.

Over the last decade, our faculty member complement has also increased, from 70 probationary, tenured and limited term faculty members to 92, which has resulted in a very large increase in the number of research graduate students supervised by individual faculty members.

Similar to our commitment to provide the best undergraduate engineering experience, Western Engineering is also dedicated to providing the best graduate engineering experience and maintaining the highest quality of standards for graduate studies and research excellence. The current target of five (5) research graduate students per faculty member reflects the research intensiveness of Western Engineering, but also requires resources to sustain this high level of activity.

GOAL: Recruit a higher number of excellent calibre graduate students to all research programs.

OBJECTIVE: Increase enrolment of both domestic and international graduate students to maintain the integrity of our programs, research intensiveness and an enrolment based budget for Western Engineering with a goal of 500 research graduate students.

Actions:

- Distribute promotional materials at conferences, visits to other universities, and via our contacts with other Chairs/Graduate Chairs at other universities, especially related to our specific research strength areas (e.g. wind, water, power, biofuels, etc.) and research clusters (e.g. ICFAR, GRC, etc.).
- Increase our exposure at other universities.
- Regularly update our websites.
- Develop a database for firms located in Southern Ontario and the Greater Toronto Area to promote various program options.
- Improve the communication and presentation skills of our current graduate students as they are our best networking tool and make excellent ambassadors for Western Engineering.
- Encourage our current graduate students to attend and present at research conferences.
- Increase promotion regarding the difference between MEng (course based) and MESc (research based) programs.
- Market our graduate programs to our current undergraduate students to increase the number of domestic graduate students. Suggested action items include:
    - Utilize classes all of our undergraduate engineering students currently take to promote our research and graduate programs.
    - Include an assignment in the undergraduate Communications course about careers in research.
    - Promote NSERC USRA more in our undergraduate program and use it as a tool to recruit graduate students – include second year students in ‘priority’ to get them involved in research early.
    - Promote our Accelerated Master’s program to current undergraduate students, and ensure consistent messaging is being delivered in all departments.

GOAL: Expand Master of Engineering enrolment.

OBJECTIVE: Offer more innovative programs in niche areas and flexible scheduling to allow working engineers to pursue a professional Master's degree with a target of at least 100 MEng students.

Actions:

- Offer more niche areas, for example MEng programs such as HVAC, Power Systems, and Engineering and Medicine.
- Initiate an on-line graduate education program for students in Canada and abroad to enrol in.
- Review MEng course offerings to ensure our programs are meeting the needs of industry.

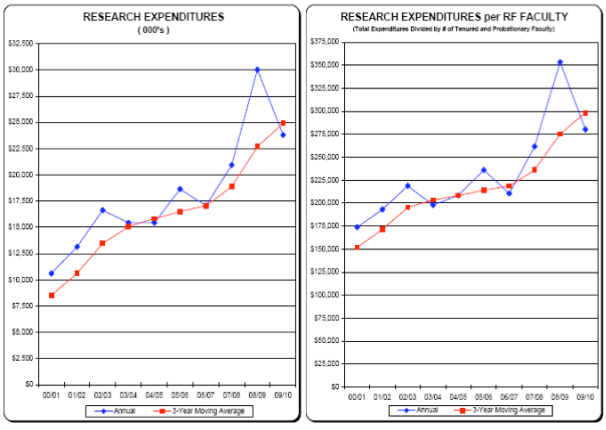
GOAL: Provide the best graduate student experience.

OBJECTIVE: Increase graduate student satisfaction by obtaining feedback and using the results to improve student experience.

Actions:

- Find more resources to offer competitive graduate student financial support to our graduate students. Western Engineering has recently implemented a new funding package to help maintain a decent standard of living for our graduate students. We should continue our efforts in this regard.
- Implement workshops for both supervisors and graduate students to provide everyone with the skills to successfully navigate any conflicts.

Research



Western Engineering's mission statement reflects our vision to be recognized for research intensiveness. In order to be successful in this regard, we need to be more selective about our areas of research strength.

Achieving research excellence is the core to the academic needs of our Faculty and external relations. We are proud to support the academic freedom of our individual faculty members to pursue research in the sector of their choice. We currently have strengths in areas varying from biomedical engineering to fluid mechanics to information engineering.

Western Engineering is internationally recognized for wind engineering, with over 40 years of individual faculty expertise, groups and projects such as the Boundary Layer Wind Tunnel Laboratory (BLWTL), Insurance Research Lab for Better Homes and the new Wind, Engineering, Energy and Environment (WindEEE) research project and facility.

With escalating concerns about climate change and the need for green technologies, Western Engineering is focusing efforts on building a sustainable future with specializations in water engineering, environmental remediation, nanotechnology, natural disasters mitigation and management, power systems, biofuels and alternative energy. Research groups and institutes focusing on these areas include Western's Power Systems Engineering Group, Particle Technology Research Centre (PTRC), Chemical Reactor Engineering Centre (CREC), Geotechnical Research Centre (GRC), Research for Subsurface Transport and Remediation (RESTORE), and the Institute for Chemicals and Fuels from Alternative Resources (ICFAR), just to name a few.

In 2007, Western Engineering identified nine research themes as our areas of research strength. A great deal has changed during the past four years so the Faculty now needs to determine if these themes are still current, reflecting the research strengths and interests of our current faculty members.

The current research themes within the Faculty are:

- Automation/Mechatronics/Robotics
- Biomedical Engineering
- Emerging Green Technologies/Processes
- Energy Systems
- Fluid Mechanics
- Information engineering
- Infrastructure Renewal
- Nanotechnology
- Natural Disaster Mitigation and Management

An area of strength for Western Engineering researchers is securing research funding. The opportunities for research funding have steadily increased over the past decade. Western Engineering faculty members rate among the highest in the country on a per capita basis. We will continue our successful efforts in this area to maintain a competitive and rich research environment for graduate students.

We also plan to take advantage of the unprecedented opportunity to develop world-class unique research infrastructure at the Advanced Manufacturing Park. We have already developed plans for WindEEE and the Composites Research Centre. We are also pursuing a rebirth of the Research Lab for Better Homes – Phase II.

GOAL: Enhance opportunities for interdisciplinary, collaborative research.

OBJECTIVE: Increase applications for funding opportunities available for collaborative and interdisciplinary research from Western, as well as from government agencies and industry partners.

Actions:

- Seek research funds to increase initiatives for interdisciplinary research.
- Introduce 'brown bag research seminars' on leading-edge research topics to encourage collaborations.
- Provide leadership to develop interdisciplinary teams.
- Encourage faculty members to apply for major grants with colleagues across the Faculty/University (e.g. CFI, NSERC Strategic and CREATE and ORF-RE).

GOAL: Strengthen and promote key strategic research areas.

OBJECTIVE: Improve promotion and marketing of Western Engineering research to increase research funding opportunities.

Actions:

- Promote Western Engineering's current number of key signature areas, including:
  - Wind engineering – link to sustainable engineering in infrastructure
  - Geotechnical engineering – link to groundwater and geoenvironmental
  - Bioprocessing – link to energy, water
  - Power engineering - link to sustainable energy
  - Communication technologies
  - Materials and nanomaterials
- Build on research areas that have emerged as strategic and with significant critical mass (i.e. nanotechnology and biotechnology/biomedical).
- Promote research in the broad areas of energy and water.
- Develop renewal/succession plans to open opportunities for new dynamic faculty in areas of strategic importance.
- Review our promotional materials for current research themes to determine if they match our current research strengths and signature areas. Our themes should also align with Western's signature areas.

GOAL: Increase partnership opportunities to support research.

OBJECTIVE: Develop opportunities for faculty interested in applied research, research commercialization and entrepreneurship.

Actions:

- Take advantage of the current environment and enhance technology transfer and commercialization.
- Provide more support/mechanisms to move innovation/developments through the commercialization path, especially for junior faculty members.

Internationalization

The University of Western Ontario has made internationalization a top priority area. To quote Western's President Amit Chakma from an editorial he wrote for the *Globe and Mail* (August 1, 2010), with emphasis added:

> *International students do pay higher fees, but that's not what drives universities to compete for the best and the brightest young minds from around the world. We recognize that international students enrich the learning experience for all our students. We are also working hard to create additional opportunities for domestic students to study abroad, so they can expand their global awareness and experience, make international connections, and promote Ontario and Canada to the world.*

Western Engineering's impact in strategically important areas must be at an international level to maintain our abilities to recruit the best students and faculty members from around the globe.

To achieve success in this regard, Western Engineering needs to develop a strategy to properly market ourselves internationally. We need to focus our recruitment efforts on bringing the best international undergraduate and graduate students to Western Engineering and promote more faculty visits by prominent international faculty members and industry leaders. We also need to encourage, and support, our current faculty and students to pursue international exchanges and research collaborations with institutions around the world.

We start from a good basis, where we have relationships with other institutions for student exchange programs, research collaborations and faculty exchanges. We should build on established international relationships and identify key strategic partners for success to develop student exchange and learning opportunities, recruit the best graduate students from around the world, and globally promote Western Engineering education and research. Our students will travel the world in their careers and we need to provide opportunities for them to understand the global marketplace.

GOAL: Attract the best international students for graduate studies.

OBJECTIVE: Increase our research competitiveness by creating a rewarding research environment for graduate studies that will attract the best academically prepared students.

Actions:

- Provide competitive financial support through research support, international support programs and other means of scholarship support.
- Ensure diversity through outreach to many countries and institutions.
- Develop innovative programs that allow students to move between institutions to foster collaborative research (e.g. dual degrees).
- Attract international undergraduate students at Western and other universities in Ontario to undertake graduate studies at Western.
- Engage Canadian students (graduate and undergraduate) as ambassadors for Western Engineering.

GOAL: Develop international exchange programs for graduate students at Western with leading universities and research centres outside Canada.

OBJECTIVE: Provide internationalization opportunities for graduate students and increase the exposure of Western Engineering research internationally.

Actions:

- Promote current exchange models for others to build on, such as the dual degree program with the Milan Polytechnic.
- Identify industrial internship partners overseas.

GOAL: Attract academically well qualified international students to undertake undergraduate studies at Western.

OBJECTIVE: Increase enrolment of international undergraduate students in Western Engineering from 2.6% to 10% to develop globally minded leaders, to provide diversity in our programs and an enriched multicultural education in the classroom.

Actions:

- Develop new programs, such as 2+2 program models, to provide opportunities for international students to undertake studies in Canada.
- Share information about our undergraduate degree programs with the Registrar's Office so they can promote Western Engineering to high school students from other countries.
- Engage Western Engineering students who are overseas, either on exchange or through Engineers without Borders activities, to be ambassadors for our programs.
- Engage Western Engineering alumni who are overseas to be ambassadors for our programs.

GOAL: Encourage undergraduate students from Western to explore international exchange opportunities.

OBJECTIVE: Increase the number of undergraduate students who have had an international experience to at least 25% of the graduating class.

Actions:

- Expand and support initiatives such as the International Development program in Civil & Environmental Engineering.
- Promote and support the WE Go Global Certificate program through partnerships for placements abroad.
- Develop travel support programs to financially enable Western students to undertake international placements.

GOAL: Promote faculty exchange visits by internationally prominent academics.

OBJECTIVE: Increase the exposure and impact of Western Engineering research internationally.

Actions:

- Use existing programs (e.g. Visiting University Professors) to their maximum extent.
- Develop summer teaching opportunities to help support visiting faculty and enrich the graduate programs.

Information Technology and e-Learning

The world changed dramatically in 1991 when information was posted on a publicly accessible service that became the birthplace of the World Wide Web. Today, information flows freely among hundreds of millions of people through a myriad of sites via many different types of communication devices, from computers to Smartphone's. We are still at the beginning of this revolution, but already it has profoundly changed how we share information. Western Engineering has made some great efforts to integrate new technologies into our daily business and e-learning, but much more can be done to harness today's technological advancements.

Our ultimate goal in Western Engineering is to become a leader in offering e-learning opportunities to support the Faculty's mission to offer the best student experience. We also need to be strategic with our web strategies to best communicate our programs, our research achievements and showcase our impact to the world.

The recent appointment of an Assistant Dean (Information Technology and e-Learning), Associate Director (Information Technology Group), and a renewed Information Technology Committee will help us enhance our communication and planning processes.

GOAL: Create a collaborative IT environment

OBJECTIVE: Utilize various methods and technologies to allow an increase in the availability of on-line class and lab material and facilitate collaboration among faculty and students.

Actions:

- Review current facilities and needs of the Faculty from document creation/posting point of view.
- Actively recruit champions for pilot projects in testing new collaborative tools.
- Provide a highly collaborative environment (e.g. wiki, shared storage, bulletin boards etc.).

GOAL: Foster ubiquitous access to resources.

OBJECTIVE: Ensure everyone has access to software and data anytime/anywhere.

Actions:

- Review current facilities, needs of the Faculty and types of mobile devices currently used as a part of infrastructure review.
- Investigate resources available from ITS for mobile and ubiquitous access.
- Actively recruit champions for pilot projects that use new types of devices for access.
- Identify and support solutions for off-campus file transfer or access and groups it would be suitable for, (for example Drop Box, and other web accessible components which are user friendly and secure), or develop custom solutions.

GOAL: Promote open standards.

OBJECTIVE: Include open solutions as options when investigating technology solutions.

Actions:

- Assess open standards in all new projects.
- Investigate how open standards may benefit existing solutions and develop plans to adopt such standards.

GOAL: Incorporate the latest technologies in support of education, research and academic needs.

OBJECTIVE: Identify and implement leading technologies and develop methods to sustain the ongoing refresh of required technologies.

Actions:

- Review existing infrastructure and survey current best practices at other institutions.
- Update the existing inventory of Information Technology Group services.
- Develop and administer a survey that identifies current needs in IT with special emphasis on targeted areas as well as utilization of existing services.
- Develop a short term plan based on the results of the survey.

GOAL: Promote the development of pilot projects to promote new paradigms in education and research.

OBJECTIVE: Create a structure to support and encourage the project environment utilizing existing knowledge and expertise from faculty and staff.

Actions:

- Set-up a process to identify sources of funding as well as mechanisms to evaluate and follow through on project proposals.
- Identify people to work with developing proposals and evaluate pilot projects.
- Provide a mechanism for quickly obtaining necessary resources for projects that are accepted.
- Actively recruit proposals for pilot projects among students, faculty and staff. Set-up a procedure to follow-up and make a decision on faculty-wide adoption at the end of the pilot project.

GOAL: Provide user training for adopted technologies and software.

OBJECTIVE: Create a method to capture training needs, identify and assess technological options, and provide training and support for solutions implemented.

Actions:

- Identify existing solutions that are under-utilized and have the greatest potential for increased efficiency.
- Conduct workshops and create learning material.
- Identify people to follow-up with new technology adoptions.
- Identify training requirements for students, faculty and staff and develop training plans to fill these gaps.
- Assess how best to deliver training needs, including outsourcing of courses.

GOAL: Develop and maintain a Disaster Recovery Plan.

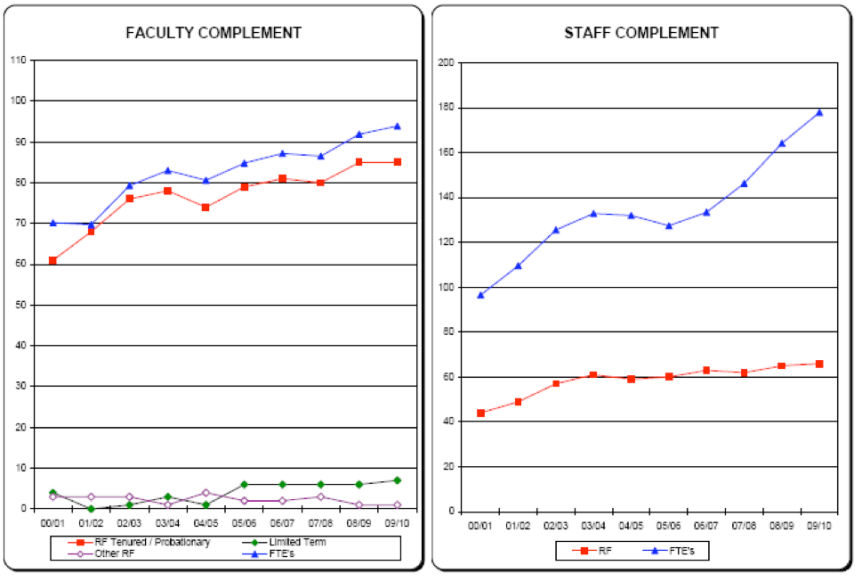
OBJECTIVE: Ensure that Western Engineering is prepared in the event of a disaster or major shutdown to continue to offer information and services to faculty, staff and students.

Actions:

- Review existing approaches for disaster prevention and recovery in communications and information systems.
- Identify people to assist in preparing a comprehensive recovery plan.
- Review recovery plan with Faculty-wide input.
- Implement and test the recovery plan.
- Make the recovery plan publicly available and provide required training.
- Emphasize disaster prevention and include it in the plan.
- Determine which systems of infrastructure components are critical to the operation of the faculty and develop outage scenarios.

Human Resources

Western Engineering's strength lies within the faculty and staff that support the educational and research mission of the Faculty. The previous academic plan identified a target of 100 faculty and we are close to that important milestone. If we are to grow further, we need to find more resources to support the faculty and staff complement needed to provide the best student experience.



We have seen a major shift in staff support with more staff supported by "soft" funding, which is either time limited or project based. Continuity of service requires that we support a dedicated high quality, well trained and motivated staff complement to commensurate with our needs and resources.

GOAL: Achieve and maintain sustainable growth in faculty and staff complement.

OBJECTIVE: Increase external funding opportunities to support faculty and staff renewal and growth.

Actions:

- Support the Faculty's leadership to become a vocal and public advocate for Western Engineering and work aggressively with the University to ensure adequate provincial funding.
- Commit to becoming a nationally recognized leader in innovative engineering education. Equally as important as the quality of academic programs is the availability of essential support services for both domestic and international students to succeed in their studies. These services range from individual counseling (academic, crisis, financial, family, career, immigration) to internship and employment opportunities (industry, government, international, NGOs).

GOAL: Create an effective and responsive organization.

OBJECTIVE: Develop an organizational structure and workplace culture that promotes respect, collaboration and teamwork.

Actions:

- Conduct a comprehensive review of the Faculty's organizational structure.
- Encourage and support faculty members who wish to undertake high risk research and high-impact academic pursuits.
- Ensure that all faculty and staff have clear career paths, and that opportunities exist for advancement and professional growth.
- Provide continual training and skills upgrading to retain highly qualified personnel and improving the work experience.
- Faculty leaders must identify and actively develop future leaders.
- Proactively recognize and reward excellence in teaching, research and support services.
- Nominate faculty for national and international awards by academic societies and professional associations.
- Develop a supportive retirement and succession plan for both faculty and staff to encourage the transfer of knowledge and experience, and enable growth in strategic areas.
- Provide effective leadership to support staff and technicians in all departments to enhance their contribution to the Faculty's mission.
- Be proactive in our recruitment efforts and ensure that the offer-of-employment is competitive with adequate resources such as office and laboratory space, administrative assistance and technical support.

GOAL: Reconnect with our core mission.

OBJECTIVE: Engage all faculty and staff in teaching and research so that they are recognized for their contributions, encouraged to be innovative and supported in their work environment.

Actions:

- Better articulate and communicate Western Engineering's goals and vision to the University community and the broader general public.
- Actively support initiatives that strengthen our relationships with Professional Engineers Ontario (PEO) and Engineers Canada.
- Re-examine existing academic programs in terms of both limited resources and relevance to professional engineering education. Opportunities to streamline curricula and better utilize faculty expertise and technical personnel will improve workplace satisfaction.
- Review the role that staff and technicians play in the Faculty, and ensure their workload is aligned with the core mission.
- Encourage Western Engineering's leadership team to actively and aggressively promote colleagues on campus, in the community and around the world.
- Faculty should include a research component in Limited Term faculty appointments to provide a means for promotion and professional growth where appropriate.
- Create a structured, formal mentoring program for all new faculty and staff. Proper training and recognition must be provided to the mentors to ensure the desired results.

GOAL: Enable a supportive workplace and learning environment.

OBJECTIVE: Improve faculty and staff morale and satisfaction.

Actions:

- Develop a supportive and "family-friendly" culture.
- Recognize and actively assist faculty and staff who choose to take a personal leave of absence (e.g. maternal, paternal) or need to tend to a sick family member. Offer new opportunities for social interactions and family gatherings.
- Seek ways to encourage casual conversations between staff and faculty across the organization (e.g. establish a faculty/staff lounge, create inviting spaces within Faculty).

Outreach: Alumni, Advancement, Communications and External Relations

Communicating with future students, alumni and supporters of the Faculty is key to our future success. We need to market our message to a wide audience, with many types of stakeholders. To be successful in this regard we need to develop a communications strategy including key messages to ensure we are all telling a consistent story about Western Engineering's strengths, goals and direction. A consistent look and brand needs to be developed and implemented, Faculty-wide, for internal and external presentations, publications, etc. More resources are required to support communications (both resources/staff and marketing materials).

It is imperative that we better leverage current contacts with alumni in industry to promote our research, programs and co-op placements.

GOAL: Increase community engagement.

OBJECTIVE: Build 'community' within Western Engineering so we can do better promotion externally.

Actions:

- Engage students as they come into the program, during the program and as they leave and become alumni – leverage smaller class sizes and building bonds etc.
- Find ways to increase faculty, staff and student involvement with Western Engineering's student clubs, groups, and teams.
- Create community areas within the Faculty to foster relationship building and community engagement.
- Initiate engineering outreach in early elementary school and continue throughout high school. For example, partnerships with the Children's Museum, elementary school workshops, Discovery Western Girls Club, etc.

GOAL: Emphasize that engineering is a profession that makes a difference.

OBJECTIVE: Increase awareness, knowledge and interest of engineering to young people of both genders with emphasis on females.

Actions:

- Emphasize components of the program that are focussed on "caring and giving." Examples:
    - Internationalization and developing countries
    - Green engineering
    - Biomedical engineering
    - Environment and water
- Build and market these programs to attract female students.
- Promote the concept that engineers solve problems, problems that "help people."
- Promote opportunities here in Western Engineering with our interdisciplinary programs in Health Sciences (expansion of biomedical to include – Audiology, Speech & Language Pathology, Kinesiology, etc.).
- Promote areas that are unique to Western, such as Civil Engineering and International Development Program.

GOAL: Develop our reputation through communications and branding.

OBJECTIVE: Increase public awareness and build name recognition within Canada and around the world. Public awareness of unique programs, student successes and faculty research contributions also directly impact alumni relations, government support corporate donations and private research funding.

Actions:

- Develop a comprehensive communications strategy.
- Develop key messages targeted towards our diverse audiences (e.g. prospective students, current faculty, staff and students, alumni and friends, etc.).
- Enforce consistent branding in all communications and marketing materials.
- Incorporate a “what's new” strategy in communication and marketing materials. For example, market Green Process Engineering, Mechatronic Systems Engineering and WE Go Global programs now and then promote a new or revamped offering in a few months time.
- Promote Western Engineering’s key areas of strength.
- Determine the impact of what we are doing around the world.
- Regularly update our websites to reach our target audiences – need to look at resources to do this effectively – e.g. content management system vs person who does all web with content provided by authors.
- Expand our social media efforts, and look at resources to manage these projects.

GOAL: Develop our contributions to the Make a Difference Campaign strategy to take us through to 2020.

OBJECTIVE: Work with the central Alumni and Development team at Western to achieve annual fundraising targets.

Actions:

- Develop our campaign goals for:
  - Endowed Chairs (target 10)
  - Scholarships
  - Niche areas
  - Research Infrastructure
  - Partner Driven Investments
- Support and encourage our faculty leaders who are connected with campaign priorities to allocate some of their time to participate in the outreach/cultivation and stewardship activities that are necessary to engage and recognize donors and potential donors to their projects.

Key Performance Indicators

Western Engineering will develop a key performance indicators document that will be publicly available and include metrics that we already collect, including but not limited to:

- The University of Western Ontario Board of Governors Key Performance Indicators
- Budget performance indicators
- National Council of Deans of Engineering and Applied Sciences survey
- National Survey of Student Engagement
- National and international rankings
- Research funding (including NSERC and other tri-council funding, OCE, and industry funding)
- Publication impact data

These metrics will be tied to specific goals and strategies within the Faculty strategic plan to measure progress against the goals.

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