Strategic Academic Plan

LASSONDE SCHOOL OF ENGINEERING
OUR COMMITMENTS & GOALS TO 2021
The world around us is changing daily, and this means that we must never stop questioning our expectations.

At the Lassonde School of Engineering, it is our mission to create a culture that hums with curiosity, welcomes ambiguity and is always hungry for learning. Where others fear change and avoid risk, we embrace them.

We adventure out together within the academic milieu, guided by our principles and spurred on by our vision.

Five years ago we were a small group of dreamers. Today we are a growing community of Lassondians – students, staff and faculty.

This is good news. It means that we have found many others who share our vision and want to follow us on our journey. Some of our needs have changed, and our physical surroundings have grown, but our vision remains.

That vision is articulated in the Strategic Academic Plan.

It describes our way of embracing the borderless and complex nature of engineering education.

The goals of the Strategic Academic Plan will be accomplished by fostering a challenging, enlightened, and collaborative academic environment that demands excellence, encourages innovative education, and supports discovery.

The main purpose of our plan is to bolster academics and foster optimism.

After all, education is not a spectator sport. We all have to get in the ring and try our hand. Let us learn from one another, guided by our plan, our vision and our strength as Lassondians.

- Janusz A. Koziński
  Founding Dean
  Lassonde School of Engineering, York University
The Lassonde School of Engineering was founded on July 1, 2012. The School is committed to creating an academic learning and research environment of the highest quality in engineering and applied sciences. Here the innovative enterprise thrives in and out of the classroom -- engaging excellence in quality research and award-winning teaching.

The world faces great challenges: climate change, infectious viruses, clean water, cyber security, to name just a few. The opportunities ahead of us are possibly even greater: big data, driverless cars, 3D printing, artificial intelligence, and many more.

All these challenges and every opportunity have many things in common: they are complex, they are borderless and they transcend traditional divides. To solve these big problems and to seize the enormous possibilities within our grasp, the world needs engineers and scientists who are more than just technical experts.

We need engineers and scientists with passion and perspective. We call them Renaissance Engineers & Scientists. We need engineering and science graduates who think in big systems not little silos, who design with people in mind, who embrace ambiguity.

The Lassonde School of Engineering has been created to be the home of the Renaissance Engineer & Scientist: a place where students are free to explore their passions, gain different perspectives from the world around them and receive an engaging educational experience.
VISION

To build the home of the Renaissance Engineer & Scientist, the Lassonde School of Engineering is creating a different kind of learning experience built on four priorities:

Renaissance Curriculum
To prepare engineering and science graduates to solve great challenges and to compete in the global economy we need a different curriculum experience. At the Lassonde School of Engineering we are training T-shaped students with a depth of knowledge and a breadth of understanding. Students learn to appreciate and understand the behaviours of physical objects and the people who use them. Students create passion projects and undertake design workshops from the outset of their degree. Students gain perspective on real world problems with co-op placements for everyone, an entrepreneurship program known as BEST, and international study opportunities.

Innovation Delivery
The days of a traditional lecture hall full of hundreds of students passively scribbling notes are numbered. We are flipping the classroom so students watch lectures online anywhere, anytime and come to class to solve problems together. We want more and more students to watch curriculum content on their phone, tablet or laptop and spend their time on campus making prototypes and designing solutions in teams under the guidance of instructors. The brand new Bergeron Centre for Engineering Excellence, the $115-million hub of the Lassonde School of Engineering, has zero lecture halls – replaced by open-plan spaces designed to ignite creativity and collaboration. The hands-on learning approach with a flipped classroom promises to give students more opportunity to work together to solve problems and to apply theoretical knowledge to practical challenges. We will continue to innovate the educational experience, to take advantage of an increasing number of innovative pedagogical approaches that are disrupting the traditional learning experience.

50:50 Challenge
The Lassonde School of Engineering knows that the quality of research and decisions is better by a mixture of women and men. The increasing presence of women in cabinets, in boardrooms and in positions of leadership throughout society has improved our understanding and response to the challenges we face. With more women involved in engineering the foundations of our lives – our cities, our health, our economy – we will all benefit.

The Lassonde School of Engineering launched a challenge to become the first engineering school in Canada to reach 50:50 gender parity across the school. We will create a school that looks 50:50 where students, faculty, post-graduates and staff have an equal gender balance. We will create a school that feels 50:50 where all genders feel confident, safe and valued in an inclusive culture. We will create a school that acts 50:50 where decisions and research, including priorities, goals and advancement are undertaken with gender equity policies in place.

Research That Matters
Our goal is to be rated among the top research-intensive student-oriented engineering Schools in the world by sustaining research excellence, fundamental trans-disciplinary research, creativity, diversity, and scientific rigour, through engagement and strategic partnerships. We aspire to find ways to address societies grand challenges through the application of novel technologies, enhances by a profound understanding of the technology commercialization process.

“THE RENAISSANCE PHILOSOPHY…[excerpt] We promote a research culture that fosters and supports the cross pollination of ideas and disciplines, empowers critical thinkers, creative researchers and problem-solvers, and engages industry leaders and entrepreneurs who understand and embrace humanism, social responsibility and cultural diversity.”

(ANNSONDE SCHOOL OF ENGINEERING STRATEGIC RESEARCH PLAN: 2015-2020)
The Lassonde School of Engineering published its Declaration of Principles in 2016. This sets out the 10 foundational principles that will guide the actions of the School over the long-term horizon in providing lifelong learning:

- An enlightened curriculum
- 50:50 gender balance
- Hands-on learning
- Putting community first
- Trusting our people
- Research with purpose
- Partnering without borders
- Educating for ingenuity
- Travelling together
- Investing wisely

Under each of these headings, the School’s leadership has communicated a bold approach to building the home of the Renaissance Engineer with a focus on outlining the values that will guide decisions over time rather than pre-determining a prescriptive blueprint for achieving our ambitions. The strategies and tactics deployed to turn this vision into reality will certainly evolve over time. The principles laid out in the document are designed to be embedded into the School’s DNA from the very outset, to inform and inspire our decisions long into the future.
LASSONDE’S STRATEGIC PLAN
OUR COMMITMENTS AND GOALS TO 2021

Academic Programs: Evolve the Curriculum
Research Enterprise: Grow the Renaissance Philosophy
Teaching & Learning: The Innovation Studio
Cultural Shift: The 50:50 Challenge & Students 1st
The Lassonde Campaign: Investing in Our Future
ACADEMIC PROGRAMS: EVOLVE THE CURRICULUM
OUR COMMITMENTS AND GOALS TO 2021

Across the School

Our Departments within the Lassonde School of Engineering are home to seven engineering programs and five science programs. Developing and implementing effective and sustainable administrative models in our Departments including strengthening the complement of support for our programs and laboratory operations are key over the next five years.

Our programs are inspired by recruiting and retaining outstanding students and creating academic communities of learning that are sustainable and growing. Priorities will continue to focus on student success, awareness of our programs in the community, and promoting the profession.

A number of activities have been initiated to strengthen our programs through curriculum updates, introduction of co-op in both engineering and science programs, the introduction of engineering graduate attributes project, delivery of blended courses, developing flipped classroom models of learning, renewal of existing programs and modernizing our teaching facilities. We will continue to develop and expand experiential learning opportunities in our undergraduate programs and introduce cross-disciplinary projects in upper year courses.

Lassonde aims to be a leader in experiential education and flipped classroom pedagogy. Our programs have made an evidence-based response to the traditional first-year course sequences in computation for scientists and engineers to yield new, experiential learning-based sequences. Initial results are markedly positive in the retention rates improving for students moving from first to second year.

Moving forward, we intend to systematically examine the curriculum for each of our programs, continuing throughout second to fourth year and into graduate studies, to determine where and how these methodologies can further enhance learning and implement it where beneficial.

The focus of our educational activities is in the delivery of current knowledge building on courses and learning opportunities that are enhanced through self-discovery in and out of class learning. In combination with increasing opportunities for students to participate in advanced undergraduate and graduate level courses that complement their required studies alongside industry partners and experts. We aspire to be at the forefront of the application of technologies to enhance engineering pedagogy, to enhance the student experience, and better prepare them to fulfill a meaningful role in society.

Securing and investing resources dedicated toward the delivery of interdisciplinary courses and activities that cross the boundaries of engineering, science, arts, social sciences, business and law or any combination of them will be pivotal in our expansion of the Renaissance Engineer.

Plans are underway for renovations for labs, basic computational facilities and instantiation of student/faculty commons to facilitate interactions between students and faculty.

The teaching and research enterprise of the School is to value its people through its people and programs with a goal to train the next generation of Canadians for the global work force. As we evolve departmental organizational structures, we will focus on implementing more effective governance structures with sustainable plans for administrative support and a cohesive management framework.

The new surge in technology, social media, and the internet, has propelled this generation into a new paradigm, often referred to as the “Internet of Things.” The next generation of students need to be trained in connecting the dots and understanding different cultures such that science and engineering can ultimately have a societal impact. One of the key components towards such training processes is to ensure that students are exposed to places (i.e., socio-economic-cultural fabric) where the things are happening in a big way for the next 20 – 30 years. These are in countries such as India, China, Brazil, Israel, United States, etc. and we have to ensure that through proper “Going Abroad” strategies that we expose our students to such emerging economies.

It is important for us to provide global experiences for our undergraduate and graduate students, which can be branded as “Lassondians Without Borders” initiative within our programs. These programs are designed to help our students learn both about the societies they visit and about themselves.
ACADEMIC PROGRAMS: EVOLVE THE CURRICULUM
OUR COMMITMENTS AND GOALS TO 2021

Academic Partnerships

Lassonde is all about creating new beginnings, including developing new programs and facilities requirements in partnership with the Departments of Chemistry and Biology to create new programs in Chemical and Biological Engineering.

The School is also committed to developing unique new program opportunities in collaboration with our sister Faculties at York and Seneca College in conjunction with industry partners to design professional linkages, degrees and certificates at the Keele & Markham campuses. Opening doors to new degree programs at the undergraduate level in Liberal Engineering and Engineering Science.

Plans are underway in developing new programs at the graduate level: the Law Engineering and Entrepreneurship Program (LEEP) that combines the MEng, BEST, and JD; Professional degrees and Executive certificates in emerging areas such as the MEng in Innovation & Technology Management; MSc in Big Data; with others on the horizon.

Accreditation & Quality Assurance

Continual program improvement is critical to building excellence in our programs. The process involves the collection of direct student performance data and indirect information (e.g., surveys) across all programs, all year levels, in every academic year. We need new systems to do this efficiently and routinely. Review boards have moved the yardstick and it is forcing a culture shift amongst instructors to consistently identify learning outcomes, measurement of student performance against outcomes, and providing concrete evidence in the data we report. The School must design an infrastructure that enables the ease in the collection and reporting of course materials and student data. It needs to be routine and support the process in undertaking the comprehensive analysis of graduate attribute assessments to show how we are measuring up and continually infusing improvement into the curriculum.

Experiential Education: Co-op & Internship Programs

Our School is invested in workplace-based learning experiences. The Lassonde Co-operative Education Program (Co-op) and Internship Program provides students with a form of education that links classroom learning with paid related employment experiences. Lassonde students explore their passions in depth and gain a breadth of perspectives from the real world. The program will provide flexible work sequences that meet the needs of students, and longer work terms that are desired by employers. Students will be able to explore their entrepreneurial passions in the co-op program by working at a start-up or taking a co-op semester to start their own businesses.

There will be a focus on building partnerships and uncovering opportunities in technology hubs around the world such as Silicon Valley and Boulder, Colorado, Israel, India, China and Brazil. Lassonde co-op students will work and learn in the “hot spots” and “emerging centres” of the world providing them with a global perspective and an international network that will drive their career success well beyond the Bergeron Centre.

Some Lassondians will choose a career path of community and international development. The co-op program will provide opportunities for our students to apply their expertise for the betterment of impoverished communities, work on sustainable energy solutions and address global inequities with technology.

Lassonde students are preparing for careers of tomorrow. Careers that will require an entrepreneurial approach to take on project-based roles, develop freelance portfolios and choose self-employment, options that are becoming the norm rather than the exception.

Across our School we are paving the path to inspire learners and create a home to Renaissance Engineers & Scientists. It is through these various forms of engagement we intend to take pivotal strides to ensure that we evolve our curriculum and provide a high quality educational experience for our students.
ACADEMIC PROGRAMS: EVOLVE THE CURRICULUM
OUR COMMITMENTS AND GOALS TO 2021

**GOAL:** Be a provincial leader in continuous program improvement and quality assurance. Develop and implement a continuous program improvement framework across all programs (e.g., Engineering and Science) to provide continual improvement and quality assurance of curricula (with particular focus on 1st year), demonstrating Lassonde’s strength and leadership as a forward-thinking engineering and applied science School.

**ACTIONS:**

1. Develop and implement the technological infrastructure that will sustain the processes and see the evolution of enhancing curriculum delivery. Including, acquiring software tools to facilitate course scheduling and outcomes based assessment.
2. Build technological and human resource capacity to support faculty members in adopting a wide variety of appropriate pedagogical approaches.
3. Fully implement, and where possible align, the UQAP, CIPS & Canadian Engineering Accreditation Board’s outcomes-assessment-based continual improvement processes.
4. Establish standard formats for publishing routine information on courses (such as outlines, course learning outcomes, class/lab/tutorial hours), to assist students and the preparation of accreditation and QA information.
5. Implement a School-wide online course evaluation mechanism that provides meaningful feedback on our courses and programs.
6. Develop meaningful pathways for experiential education to intersect and improve curricula.

**GOAL:** To attain global recognition for Renaissance Engineering. Expand the innovative academic initiatives in support of the School’s Renaissance education vision. Clearly articulate a well-defined meaning of the Renaissance Engineer concept.

**ACTIONS:**

1. Define the Renaissance Engineer concept and development of pathways for implementation.
2. Develop new programs and design new facilities for the launch of Chemical and Biological Engineering, in partnership with the Departments of Chemistry and Biology.
3. Develop the “Liberal Engineering” program concept into a full proposal for consultation and approval; as well as, the Engineering Science program.
4. Finalize and launch the Law Engineering and Entrepreneurship Program (LEEP) that combines MEng, BEST, and JD; MEng in Innovation & Technology Management; and MSc in Big Data.
5. Work through Provost’s Office and with other Faculties at York to identify unique new programs appropriate for the new Markham campus, including Seneca-Lassonde pathways.
GOAL: Design a dynamic curricular life cycle tracer. Create an Academic Curriculum and Assessment Management System designed to track the history, delivery, and quality of our academic programs from inception right through to degree auditing.

ACTIONS:
1. Establish departmental buy-in and value of the new system.
2. Research possible vendors and assess cost.
3. Interface points of this system with York Systems.
4. Undertake a roll-out strategy for faculty, staff and students to use the system to manage:
   - Curriculum design and approvals through the governance process;
   - Curriculum Mapping of course learning outcomes to Graduate Attributes, Undergraduate Degree Level Expectations and associated Indicators;
   - Collection and analysis of Learning Outcome Assessment Data;
   - Degree Auditing interface for staff and students; and
   - Connect and Reconcile Teaching Qualifications requirements with course delivery.

GOAL: The Lassonde Co-op Department will become an Institutional Leader in Experiential Education. Our unit will become a thought leader in the field of experiential education and work integrated learning at Lassonde and across York University fostering purposeful, collaborative co-op employer partnerships that strategically support our academic programs.

ACTIONS:
1. Create an employer advisory committee to solicit meaningful qualitative feedback.
2. Continue to recognize exceptional employer mentorship through an ‘Employer of the Year Awards.’
3. Provide high value employer appreciation events such as the Rogers Cup and professional development opportunities.
4. Develop innovative and global opportunities for our students.
Research Leadership & Impactful Horizons

Lassonde School of Engineering has enormous potential and existing research strengths. Researchers at Lassonde conduct research that impacts society, human health, environment and the economy. The need to facilitate translation of research beyond the standard academic means has become evident and urgent. The School is dedicated to supporting the growth of our key research strengths (listed below) as identified in the Strategic Research Plan with key priorities identified below.

- Environment & Climate Change
- Space Exploration
- Infrastructure Development, Resilience, and Sustainability
- Intelligent and Interactive Systems
- Bio-Engineering

Research Leadership

Our current research areas of strength must be buttressed with additional hires, especially at the assistant professor level, given the seniority of some of our most prominent researchers. To further establish our reputation as leaders in science and engineering research, we must move into complementary areas through targeted hiring.

We will continue to expand and enhance our hub of world-class research Centres: Centre for Vision Research (CVR), Centre for Research in Earth & Space Science (CRESS), Canadian Centre for Field Robotics (CCFR), York CAR, and Innovation Computing at Lassonde (IC@L). Our researchers are active collaborators with industry and government partners that are integral components of these programs, and require ongoing support.

Growing strong departments that attracts distinguished Research Chairs through endowments and partnerships with industry and/or government will continue to foster the dynamic hub of research being undertaken at Lassonde.

Building Strategic Partnerships

Building and maintaining meaningful relationships with key partners in the research sector and beyond is the essential to future success. This provides the basis for collaborative research and a multi-disciplinary approach to problems. Our strategy will include cultivating the existing partnerships and expanding engagement with new partners. With the aim to expand our funding portfolio, we will focus on identifying opportunities for collaboration with the following: Local, provincial and federal government; International partners (public and private); Industry and Private Sectors; Hospitals and Health Intuitions; Non-profit Organizations and Foundations.

Our faculty value the importance of building linkages with national and international partners in the area of research and student internships to build and share in the research enterprise of its activities by allowing for unique research opportunities in attracting visiting scholars for day visits and spending their sabbaticals with us.

Focus will be placed on providing support to major funded initiatives at Lassonde, both the existing large scale funding projects and to stimulate new teams at Lassonde, including oversight of financial and academic activities. Coordination of support services and involvement of internal and external partners will enhance the implementation and effectiveness of programs, such as: Vision Science to Applications (VISTA) CFREF; BRAIN ORE RF; Chairs at Lassonde: NSERC Quanser Chair and NSERC/CSA/ABB IRC in Remote Sounding; CFI Funded Facilities (CAPS and SPARC).

Knowledge Translation and Demonstration of Impact of Research - The key to creating and demonstrating impact is the effectiveness of the dissemination and translation methods. We will develop innovative approaches to knowledge translation from research to practice, working in collaboration with offices on campus and beyond to disseminate and transfer the results of Lassonde research to society. Tools will be developed and implemented to enhance the methods of knowledge dissemination and translation for Lassondians to ensure that we maximize the impact of our ingenuity on society, and to celebrate the work of our students and professors.
Graduate Studies

The School aims at growing the Renaissance philosophy within the research and graduate studies enterprise for the School, with a focus to broaden the School's investments to attract outstanding graduate students and Post-Doctoral Fellows to support our research intensification efforts in new and emerging areas.

Alongside the expansion of these efforts the development of foundational operating practices and policies will be established to demonstrate a sustainable resource base and principles for operating Lassonde Graduate activities. These pillars will be key in supporting the success of the research endeavours of our colleagues and raising the research profile of Engineering and Science at Lassonde.

Our Graduate Programs

Our departments are setting out to establish top-notch MASc, MEng, MSc and PhD programs with the focus on fundamentals as well as applied research that will have significant impacts in society as a whole and on the engineering practices in particular.

Our priorities are to:

- establish world-class experimental and computational research facilities;
- recruit top researchers to our faculty positions;
- attract the best students to our graduate programs; and,
- develop and nurture sustainable partnerships with industry as well as with internationally-renowned research groups from within Canada and abroad.

The aim is to become a leader in delivering professional graduate engineering education through the use of innovative modular delivery of courses, professional skills development and experiential education opportunities, and the enhancement of our research infrastructure.

Attracting high quality graduate students - Graduate students are the lifeblood of research. Lassonde must increase the visibility of its graduate and research programs to attract top students. Staff resources need to be dedicated to each graduate program to develop and implement outreach and publicity campaigns centered around research and graduate studies. Specific activities should include development of new communications strategies, regularly run lab tours and installation of video walls throughout Lassonde spaces that highlight research activities. We also propose annual graduate student recruitment/conversion events to be run separately by each department.

Our departments strive to attract and train talented graduate and undergraduate students to engage in research, innovation and technology development. Securing proper funding and research space infrastructure to enable development of innovative hubs is of central importance.

Enhanced research infrastructure – A continual infusion and commitment to improving the research infrastructure in required across the School. Plans are underway to develop a comprehensive plan for systematic renewal and expansion of research space and facilities to encompass growth that is a natural product of extending the research activities of our current faculty complement as well as new hires (e.g., lab and equipment as well as faculty and student office space)

Lifelong learning opportunities – As part of our commitment to lifelong learning, we will work with partners at York, and globally, to offer Professional Education opportunities to engineering graduates, both to enhance their career options, and to comply with professional development requirements. Programs will be delivered in a variety of formats, and include options in both the management of technology and advanced technology areas.
RESEARCH ENTERPRISE: GROW THE RENAISSANCE PHILOSOPHY
OUR COMMITMENTS AND GOALS TO 2021

GOAL: Escalate research intensification, enhance recognition and reputation of the School. Attract excellent researchers to lead graduate programs and research collaborations, creating an engaged hub of award-winning scholars that will attract new graduate students, post-doctoral fellows and become a catalyst for inspiring research activity.

ACTIONS:
1. Strategically target specific, department defined research areas of interest in faculty hiring plans.
2. Fully implement an independently governed graduate studies within Lassonde to provide flexibility in the admission processes, to offer competitive funding and superior research facilities to attract and admit the best students.
3. Invest to recruit and maintain research excellence by providing competitive scholarships and bursaries to graduate students, over and above established offerings.
4. Invest in our body of undergraduate students as a pool of future graduate students by continuing to develop programs to provide experiential learning opportunities and exposure to research.

GOAL: To enhance research productivity through innovation. The School will attain resources and programs to foster knowledge transfer with industry partners, including the creation of technology ventures.

ACTIONS:
1. Integrate enhanced knowledge mobilization into our research activities and develop a multi-disciplinary approach to innovation, technology management and commercialization.
2. Create a fund that to support activities to support this goal (i.e., Lassonde Venture Fund) and to assist in the commercialization of technologies.
3. Attract new partners through integrated networking and design a platform to support growth of dynamic, leading-edge research and collaboration.
4. Showcase Lassonde faculty and provide a powerful training tool for highly qualified personnel in a truly trans-disciplinary research environment.

GOAL: Support the Strategic Research Plan of the School through the creation and implementation of a Research Integrated Resource Plan (RIRP). The creation of a framework to identify and to deliver resources to advance the “Renaissance Engineering” philosophy with impactful research and graduation education. A key focus will be to address the acute need for academic and research space.

ACTIONS:
1. Assess resource requirements of extant Lassonde programs with a particular emphasis on space needs and allocations.
2. Establish empirically-based metrics and benchmarking designed to evaluate and illustrate research impact.
3. Invest in innovation, cross-pollination of ideas and disciplines, community engagement, and people.
4. Enhance cooperation across departments, institution and other universities nationally and internationally.
5. Provide systematic, and transparent reporting on progress and receiving feedback.
The learning experiences of our students will have a ripple effect across the entire School. Students that have been inspired to develop a love of learning and adopt a growth mindset that welcomes challenges, will go on to become first-class graduate students, valued change agents in their places of employment and provocative entrepreneurs.

Through an action-orientated, bi-modal approach, Lassonde will seek to define engaging learning experiences that foster curiosity and a passion for life-long learning.

An intensive research phase will include looking in/looking out activities to document current teaching approaches, innovative and productive approaches across the Engineering Education landscape and the identification of novel experiences from analogous sectors.

While research is being undertaken, Lassonde Studio will engage with faculty members and current students to prototype flipped classroom models. The combination of a planned investigative study and the cycles of iteration from prototyping will serve to identify and create Lassonde approaches to Learning.

These core activities – combined with the exploration of emerging technologies – adaptive learning, virtual and augmented reality, personalized learning paths, will place Lassonde as creative thought leaders and practitioners in engaged models of learning.

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**Lassonde Studio – Learning by Doing**

The Lassonde Studio supports instructors in developing and enhancing the flipped classroom experience. Lassonde Studio will guide instructors through experimentation with technologies and approaches, and provide practical support for the re-design of courses and learning objects. Members of the studio will be collaborative by nature, action-oriented and willing to share their projects and experiences. Simply put, the Lassonde studio will be a one-stop centre for technology and teaching/learning support.

**Studio projects will include:**

- Creation of engaging online course in Creativity and Innovation using cloud-based learning management system, including design guides and production of video assets
- Digital Badges project – investigation and implementation of digital badging frameworks and certificates issues for co-curricular activities
- Creation of First-year Engineering support guides
- Facilitation of user generated content to enhance the learning experience

The Studio collective will be built upon the experiential nature of the School’s disciplines. Lassonde work study and summer students will act as Digital Sherpas, providing hands-on support and practical digital services.
Learning from Passionate Experts – The Innovative Class
The School will continue to move in new pedagogical directions, by promoting and developing alternate faculty hires as Teaching Champions and Lab Stars. The School will continue to strengthen and design a teaching hub of passionate instructors, fostering a culture of sharing approaches and expertise in teaching and learning. These appointments are intended to work with other course instructors to realize innovative ideas in the classroom and laboratories for advancing the development and delivery of a continuously improvement across the curriculum.

The benefits will range from: better integration of course and lab content across the curriculum; improved delivery, maintenance and updated perspectives/topics/equipment to provide a higher quality experience; greater uniformity and consistency in the course and lab experiences for our students; and most importantly, having qualified leads championing the academic development of courses and laboratories across the curriculum.

Pathways to Passions
Engineering timetables are often the most arduous of all undergraduate experiences. While the long-term strategy is to curate and create Renaissance Learning experiences, the School will invest in learning and technology partnerships to increase the educational offerings available to our students. This may include partnerships with Adobe (access to creative cloud applications); Design Thinking based experiences through IdeoU and Acumen; Coding opportunities through Team Treehouse and General Assembly; and Lassonde created guides.

Lassonde Digital Services (LDS)
Lassonde Digital Services will identify and launch software distribution services for students and faculty. Creating a focal point for student-facing technology services – defining what’s available and how do the community can gain access to what they need. The LDS team will investigate optimal web hosting services for all Lassonde students to be used for Lassonde projects and entrepreneurial activities. The creation of a ‘Made at Lassonde’ forum to showcase student projects and celebrate our successes and failures to exemplify how design thinking and experience inspires.

GOAL: Establish a Lassonde approach to learning experiences

ACTIONS:
1. Undertake an extensive discovery project to review the Engineering Education landscape & document novel analogous learning experiences.
2. Create an online repository of study findings, approaches and methodologies related to learning experiences.
3. Establish a faculty learning innovation group, in collaboration with the Technology Enhanced Active Learning (TEAL) Committee and alternate-stream faculty members.

GOAL: Adopt a Learning Innovation framework that encourages discovery, experimentation and knowledge sharing.

ACTIONS:
1. Co-create learning experience prototypes with current students and faculty members
2. Encourage sharing of prototype insights with the Lassonde community
3. Use prototypes to test new approaches & to accurately estimate costs of larger scale adoptions

GOAL: Create a supportive learning network for Lassonde instructors

ACTIONS:
1. Equip faculty/instructors with a Learning toolkit – inspiration and tools to deliver new experiences for students.
2. Re-design the faculty experience to give professors agency, incentives and pathways to implement new learning experiences.
3. Host a series of Engineering/Science forums and events, featuring Lassonde Teaching champions and Lab stars.
4. Create a digital network of teaching resources and inspirations.
GOAL: Establish the Lassonde Studio throughout the School, providing support for teaching innovations and educational technology support.

ACTIONS:
1. Establish an on-going budget allocation for Lassonde Studio activities
2. Create a physical base for the Studio collective in Bergeron Centre
3. Promote digital creation techniques across the School (Digital recording via dedicated studios and personal recording options)
4. Promote availability of technical support for Educational Technology endeavours, including learning platform reviews, technology pilots and technology recommendations.

GOAL: Promote the Lassonde Flipped Classroom approach to learning.

ACTIONS:
1. Through collaboration with Lassonde Accreditation staff, develop specific definitions and clear methods for implementing a flipped classroom.
2. Continue investment in alternate faculty hire roles and promote their teaching activities and methodologies.
3. Prototype the transformation of traditional course offerings into a Flipped delivery model, documenting the approach and the required resource investments.

GOAL: Increase access to Renaissance Engineering experiences through partnerships

ACTIONS:
1. Engage students in defining how they like to learn and how to ignite learning that is reflective of a Renaissance education.
2. Consult with Advancement and External relations to determine potential funding arrangements for complementary learning experiences.
3. Identify potential partners and define arrangements
4. Promote experiences to Lassonde students– investigate the possibility of a dedicated Learning system for these complementary experiences, offering opportunities for Lassonde Community members and clubs to create their own offerings.
CULTURAL SHIFT: THE 50:50 CHALLENGE & STUDENTS 1ST
OUR COMMITMENTS AND GOALS TO 2021

Bergeron Centre for Engineering Excellence
A brand new $100M+ home with spaces designed to inspire each one of us in different ways. The Bergeron Centre belongs to all of us. Not everyone has an office or a lab in there, but everyone should regard it as home. There are classrooms that will be available for students in every program, the design commons on the second floor devoted to collaborative projects and spaces for meetings or events that are all for our community to use regardless of departmental/unit affiliation.

Community
We are building a new academic community here at Lassonde. A community is rarely unified on every, or any, issue. A community’s strength comes from an intangible sense of trust and underlying camaraderie that endures through good times and bad.

What’s important in the years ahead of us, whatever they bring, is to promise ourselves that we will look for the best in our colleagues, listen to better angles of our nature and avoid doubting the intentions of others.

To achieve our ambitions we will need to support one another and be prepared to go beyond our job descriptions at times. We will make every effort to support our community endeavours and projects with the resources necessary to accomplish our goals.

360° Admissions & Recruitment
Stimulating this cultural shift from prospective student to applicant, right on through to signing up and transitioning to becoming a Lassondian for life. Bringing admissions and recruitment activities in-house to generate service autonomy by improving admissions intelligence and really getting to know our students. Part of our processes will shift and be designed to set up predictors for success beyond just a students’ incoming Grade Point Average (GPA). The School is striving to develop a 360 degree perspective of Lassondian characteristics to match students’ passion, aptitude and appetite.

Lassonde will continue recruit strategically by building unique partnerships with high schools, including addressing the gender gap and rolling out “Tinker Tank” to provide on-site connections at high schools to Lassonde engineering and science so that prospective students have the opportunity to engage in building ideas, and find their fit.

50:50 Challenge
In order to achieve 50:50 gender parity, an integrated strategy across all aspects of the school is required. It starts with the culture of teaching, research and activities inside the school and expands out to the hiring of faculty and staff, the recruitment and support of women entering the school, the outreach to middle school women to prevent them from leaving the sciences, and to the inclusive culture of our co-op and internship employers. Our school will celebrate best practices and leadership in gender equity and inclusion as a way to affect a culture shift. All Lassonde staff teams and departments will have internal gender equity goals in order to drive change. Student recruitment and faculty hiring are the top two priority areas as they represent the largest gender gaps and the school has the most direct ability to influence decisions made in these areas. Extra-ordinary efforts will be required to improve the ratio of women in our students and our faculty.

The Hub
Community engagement and helping students to have a sense of place in a large institution is critical to ensuring an optimal learning experience. The central hub of student services will continue to develop new ways of working with our student to provide a successful transition into university life @ Lassonde. Building into Lassonde’s fabric the need to demonstrate continuous improvement, evaluation and assessment of our processes around all student services and supports will be a key over the next several years. The student support team is there to anchor advising, mentoring and alumni relations, to propel our community forward. It is not just about how we work with students and faculty, it is about how students and faculty function and thrive in our environment – it is the integral part of what the School is about.
**CULTURAL SHIFT: THE 50:50 CHALLENGE & STUDENTS 1ST COMMITMENTS AND GOALS TO 2021**

**Lassonde Space**

Key to supporting our student and faculty research success will be ensuring that we excel in equipping and commissioning our undergraduate labs and classrooms. Revitalizing lab, learning and social areas across the School, in physical space outside the Bergeron Centre, are important in ensuring that all Lassonde space achieve and provide a uniform, high quality student experience.

**GOAL:** Creating an Inclusive Community for All. Create physical spaces across the School that are welcoming, respected by all members, promote equal treatment and opportunities across the Lassonde: Bergeron, Lassonde, Petrie & William Small.

**ACTIONS:**
1. Promote more equity between students: male and female, science and engineering, continuing and new, large and small programs.
2. Create more transparent and respectable communication between students and course directors, faculty and staff, administrators and faculty members.
3. Create opportunities for members of different groups to identify and share their similarities and differences.

**GOAL:** Strategic Admissions, Recruitment & Enrolment. Create innovate ways to recruit and promote student connections by promoting the Club Lassonde community and culture from high school through to arrival at their program in Lassonde.

**ACTIONS:**
1. Design and implement a new Lassonde admissions process that reduces dependency on GPA as the sole basis of admission.
2. Refine enrolment processes to promote earlier enrolment to improve efficacy of both admissions and enrolment processes.
3. Redefine domestic and international high school relationships, establishing a select list of adopted high schools to create mutually beneficial relationships including closing the gender gap. This can include curriculum co-design, research and professional development.
4. Introduce the Lassonde Tinker Truck at 3 local high schools, with co-developed workshops created to complement high school curriculum.

**GOAL:** Student Support & Services. Develop, implement a continuous improvement student-centered service delivery model.

**ACTIONS:**
1. Establish a new student Centre in Bergeron where enhanced engagement of students occurs and student spaces are well utilized.
2. Secure appropriate staffing to support operations and build a culture of collaboration and respect.
3. New Student Hub website developed and live, with increase strategic communications for/to students.
4. “Professional” advising services are created and supported by appropriate staffing to advise students on careers, support job searches outside of co-op and to support job-seeking alumni and to advise Engineering students on the Engineering licensing process.
GOAL: The 50:50 Challenge. To become the first engineering School in Canada to reach a 50:50 gender parity at all levels, including its faculty, undergraduate and graduate student population.

ACTIONS:

1. Develop and implement a strategic plan (SP) to accomplish the goals of the 50:50 challenge. The SP is expected to include elements such as: Programming sponsorship at different program levels; community and school culture development; on-going communications to stakeholders; recognition programs to recognize and to build upon positive contributions to the challenge’s goals.

2. Evaluate the outcome of the SP implementation; including the development of processes to track gender parity and other relevant outcome measure for each of the target groups on an annual or sub-annual basis.

3. Identify stakeholders in the 50:50 Challenge and report outcome measures to them.

GOAL: Create a school that looks, feels and acts 50:50 gender balanced. To become the first engineering school in Canada to achieve 50:50 gender parity of students, faculty, post-graduates and staff; where all genders feel confident, safe and valued in an inclusive culture; and, where decisions and research are undertaken with gender equity policies in place.

ACTIONS:

1. Develop a student recruitment practice that identifies women applicants, builds a customized education offerings (including mentorship, scholarship and internships) and results in 50% of accepted offers by women.

2. Create a Lassonde Inclusive Hiring Tool Kit based on a review of faculty hiring policies, search communications, proactive recruitment, selection criteria and training and development for the selection committee and affirmative action representatives.

3. Develop and implement pre-emptive retention strategies and leadership development of post-graduate students and faculty to improve the culture of inclusion.

4. Implement an Inclusion Lens Tool Kit to guide the planning, advertising, execution and assessment of student events, the constitution and governance of student groups, and the formation and functioning of student work teams.

5. Identify, gather and effect a measurable improvement in gender experience statistics by ensuring gender equity is a measured outcome of all Lassonde initiatives and research.
THE LASSONDE CAMPAIGN: INVESTING IN OUR FUTURE...
OUR COMMITMENTS AND GOALS TO 2021

The Lassonde School of Engineering campaign will dovetail seamlessly with York University’s institution-wide fundraising activities. In April 2016, Lassonde’s campaign was integrated into the University’s fundraising efforts in terms of coordination and consistency. The message and the priorities are being determined by the School, led by the Dean’s Office in close collaboration with each Department.

Objective $85 Million
The target is not exclusively “new money” and will include the gifts received since the School was established. Most notably, the donations from Pierre Lassonde ($25-million), Doug & Sandra Bergeron ($10-million) and Ignat Kaneff ($5-million) will count towards the School’s target. This remains an ambitious target and the highest of any Faculty or School within York University.

Strategy
Both York University and Lassonde School of Engineering face tough competition from prospective donors to win their support. It is critical to project a compelling and consistent message that resonates with philanthropists, industry partners and alumni, and differentiates from our competitors.

The message will be firmly rooted in the School’s commitment to become the Home of the Renaissance Engineer, where students and researchers alike are free to explore their passions and gain new perspectives from the world around them.

Philanthropists want to support a School that is focused on solving the great challenges of society and to seize the opportunities of the next 50 years. Industrial partners want to hire talented graduates with a broad set of knowledge, with a creative approach to problem-solving and to whom working in global and diverse environments is second nature. Similarly, these private sector firms are seeking to work with researchers who are connected with the world and collaborate with partners from a variety of different sectors.

Alumni – as well as current students and their families – want to give back to create an engineering education that will prepare today’s engineering graduates to be equipped with the skills needed to achieve their ambitions.

The School’s fundraising will focus on:
1) Investing in Lassonde’s Differentiators,
2) Building on Lassonde’s Strengths, and
3) Expanding Lassonde’s Reach.

Tactics
We aim to build on both philanthropists and ordinary people, to supplement the revenue we receive from tuition government funds and grants. We will tap into a grassroots network (of alumni and others) that will provide ongoing and sustained support over the decades ahead.

It is incumbent on everyone in the School to provide the energy and enthusiasm to excite our supporters. The tactical plan will involve people at every level of the School as we work together to make our priorities possible and for the collective benefit of everyone in our community – students, researchers, faculty and staff.

Academic, Research & Resource Planning
Through a series of planning activities: the Strategic Academic Plan (SAP), the Strategic Research Plan (SRP) and the Integrated Resource Plan (IRP) for the School, combined with institutional and local unit plans, will align our operational budgets with our resources and priorities. The IRP along with the outcomes of the Academic & Administrative Program Review (AAPR) will assist us in ensuring that our budget plans are mapped to the destinations where we intend our expenditures and priorities to be supported.

Over the next several years the School will continue to invest in developing a series of tools and analytics to better support our functional operations and reporting exercises across the departments and units.

Transition to SHARP & Budget Model Enhancement
Transitioning all of our Departments to the SHARP budget model with the goal to create financial incentives where appropriate and align Departmental activities with the School’s strategic priorities will be at the forefront of change for the School and its administration.
THE LASSONDE CAMPAIGN: INVESTING IN OUR FUTURE...
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The School will improve the effectiveness of our budget model at a detailed level to improve the model's predictability for our future financial growth and prosperity. Particular attention will be paid to risk management (e.g., contingency), inter-faculty service teaching, graduate enrolment and teaching assistance funding.

GOAL: Investing in and enhancing our Differentiators. As a School we have chosen to create a different kind of engineering education. We must stand out from the others, and our proposition ought to appeal to each of our core target audiences.

ACTIONS:
1. Renaissance Curriculum: create joint programs and collaborative courses, expand co-op and internships, and foster campus-wide engagement in building a technology entrepreneurial culture.
2. Classroom Flip: Change the way the School delivers the curriculum with an emphasis to utilize technology both inside and outside the classroom, to give students more opportunity to learn by doing.
3. 50:50: Deliver innovative programming that motivates and supports women to study and pursue careers in engineering and science, and achieve gender parity in our school.

GOAL: Building on Strengths. While the Lassonde School is new, we are also building on the legacy of outstanding teaching and research established at York University in engineering and science over decades.

ACTIONS:
We intend to seek investment to:
1. Support existing research;
2. Further improve the quality of teaching; and
3. Upgrade our facilities, particularly in the Petrie and Lassonde buildings.

GOAL: Expanding our Reach. The Lassonde School was designed to expand the range of programs offer to meet the growing demand for engineering talent and places from our surrounding catchment area, the fastest growing region in Canada.

ACTIONS:
1. Develop proposals for new infrastructure for students, researchers and entrepreneurs (e.g., establish new programs in Chemical and Biological Engineering and a new facility to complement the existing Lassonde spaces).
2. Raise our local and international profile through strategically directed communications and media outlets.
3. Facilitate alumni and industry interactions to support technology commercialization and venture creation through funding, mentoring and the development of new relationships.

GOAL: Demonstrate fiscal intelligence across the School. To be a leader in designing a financial structure that supports the accountability and sensitivities of a dynamic, growing and multi-stakeholder organization by implementing an activity based budget model that is transparent, and aligns with the School’s strategic vision and priorities.

ACTIONS:
1. Design the new budget model in consultation with academic leaders.
2. Transition Departments to the new SHARP budget model.
3. Continuously improve the new budget model and resource tools in light of the Schools’ evolving context.
4. Design a data and facts hub for internal and external audiences to better distill an understanding of our community.
5. Create reference and operational ‘tool kits’ for department and School administrative areas.