

LASSONDE SCHOOL OF ENGINEERING ACADEMIC PLAN

2021-2026

Transforming People & Ideas with Purpose

A decade ago, our Lassonde School of Engineering at York University was created with massive zeal, passion and boundless energy to be successful. Situated in the heart of the multicultural Greater Toronto Area, it's a vibrant home to engineers, scientists and entrepreneurs, representing a diverse community of students, faculty, staff, alumni and partners.

United by a common desire to create a better world, we work together to devise practical solutions for seemingly impossible problems. An interdisciplinary approach is central to Lassonde – it's what differentiates the School – and drives its success. When we first launched, we purposely blurred the boundaries between our disciplines. As we look to the future, we will continue to be aware of our context and the challenges our society faces. Current examples of these challenges include: a global health crisis, protecting our democracy, fighting climate change, working towards reconciliation with Indigenous Peoples and addressing inclusion and multiculturalism. We still believe that a blending of art, science and engineering provides a unique and valuable basis for tackling these and other challenges.

We are proud to be a School where earth and space scientists, computer scientists and engineers of various disciplines collaborate within and beyond Science, Technology, Engineering & Mathematics (STEM) teams to address global challenges. Taking a truly interdisciplinary approach, we spark creativity and innovation, and empower our graduates to think in big systems rather than small silos, design with people in mind, and overcome ambiguity.

Through the development of this plan, the product of many conversations and consultations, it became clear that what defines us is 'community' and we describe our School as a 'home.' This sense of community comes from valuing and supporting our members for who they are, and more importantly, who they want to become. It's our privilege to be a part of this lifelong transformation.

As Lassonde has grown exponentially, so too has the positive local and global impact of our community, whose different perspectives consistently serve to strengthen our core educational and research mission. Our School's success provides a strong foundation from which to advance in the next phase of our development.

As our School contributes to the knowledge base of Canada, we have an opportunity to take our future path side-by-side with Indigenous Peoples who have always learned from and innovated with the natural world, so that together we can work to provide a sustainable future for generations to come.

Greater awareness of our responsibilities through interdisciplinary alignment and action, we will make a positive difference. Being relatively new, our School has the desire, determination, and agility to provide an environment that supports both transformative change in teaching and learning and the creative endeavours of full research development and implementation. Our partners will continue to play a pivotal role as we expand our community, achieving greater knowledge and impact through co-creations in learning and research.

We hope you see yourself in this plan, which outlines our purpose, values, and strategic themes towards achieving our vision. Developed through collective self-reflection, our new vision signals whom we truly are and what Lassonde will become.

Our Vision

To be recognized among the world's best interdisciplinary engineering schools, a home where engineers and scientists collaborate to improve the world for everyone.

Our Purpose

To nurture and empower our community of diverse interdisciplinary creators, by fostering creativity and innovation and providing a transformative education along with research and lifelong learning opportunities aimed to cultivate new ideas, knowledge and contribute towards a more sustainable world for all.

Our Values

As we work together to achieve our vision, we are guided by our shared values that direct our approach and who we are as creative changemakers. We strive to be:

Nurturing – We will foster a collaborative sense of belonging and a supportive community environment that values people, their differences, and nurtures tolerance.

Excellent – We will always ask the question: How can we be better?

Passionate – We will lead and pursue all our creative endeavours with passion.

Respectful – We will embrace the diverse perspectives of our community in an environment of academic freedom where we can respectfully disagree and come together in respectful compromise.

Trustworthy – We will hold ourselves accountable to the highest ethical standards in all we do.

Risk-taking – We will continually challenge the status quo with new ideas in a relentless pursuit of positive change.

Our Strategic Themes

Each of these themes has key initiatives that illustrate what we expect to achieve within the life span of this academic plan.

Leading in Creating Solutions for a Just and Sustainable World

The York community has pledged to deepen our collective contributions to the United Nation's Sustainable Development Goals (UN's SDGs). The challenges ahead require increasingly complex solutions, applying perspectives gained from a variety of skills, disciplines, and diverse experiences. The Lassonde community is ideally placed to bridge the cyber-physical worlds to provide sustainable, inclusive, human-centred solutions to realize the SDGs. Many of these solutions will be born from our research and rolled out as global solutions. We will provide dynamic support for fundamental research that provides the supporting knowledge and applied research that turns knowledge into practical solutions. We will support the deployment of these solutions by empowering creative thinkers and entrepreneurs to gain the depth and breadth of skills to contribute to our interdisciplinary teams. We will identify and support new opportunities within and outside of Lassonde to broaden and enhance this objective and promote our collaborations – recognizing that, properly constituted, the sum of the parts is truly greater than the whole.

Together we will make a positive impact and will multiply this impact as our graduates and contributions seed the Lassonde vision in the global community.

Key Initiatives:

- *Lassonde will be at the forefront of tackling real-world problems to address environmental, economic, technical, and societal challenges derived from our interdisciplinary engineering and science research.*
- *Notable new technology entrepreneurship and knowledge mobilization initiatives, such as those led through the Bergeron Entrepreneurs in Science and Technology (BEST) program, will increase Lassonde's innovative impact.*
- *Lassonde's research is led by a growing and vibrant ecosystem of collaborative and outward-looking Organized Research Units (ORUs) (Institutes and Centres). These ORUs enable the research aspirations of their members and build value by creating connections between disparate groups and deriving solutions for external partners.*
- *We prioritize supporting and investing in our researchers and their development as a close-knit supportive research community.*
- *Our research will actively involve external stakeholders and communities in deep, meaningful ways right from the design of any project we undertake.*
- *Our research will have a positive impact in the world, be recognized by our peers, and establish us as a leading interdisciplinary engineering school in the world.*

Empowering our People with Perspectives, Tools and Knowledge

We will develop a community of strong but collaboratively-minded individuals by supporting our people and fostering opportunities for development through a variety of learning models, flexible offerings, work-integrated programs and unique experiential learning and research opportunities. The School will provide a transformative learning environment that is equipped with modern technology, systems and spaces for innovative ideas to be formed and to prosper. We have the ultimate goal of developing scientists, engineers and entrepreneurs who can contribute critical knowledge, leadership to society and make positive change. Through a combination of partnerships with leading universities and employers, working in interdisciplinary teams and researching alongside community groups, these experiences prepare us all

for a new tomorrow. A place where every learner, with their individual strengths and weaknesses, can find a path to explore growth opportunities on their lifelong learning journey.

Key Initiatives:

- *Lassonde's teaching community is supported by leading pedagogy and educational technology to provide our learners a depth of knowledge, critical thinking and interdisciplinarity experience.*
- *We will provide a seamless combination of research, work, and flexible learning opportunities offered at every stage of lifelong learning, from pre-university and undergraduate to graduate, post, and beyond will strengthen and grow our community.*
- *We will be leaders in pioneering new teaching methods and learning models that will attract students who would have otherwise been unable to pursue a degree.*
- *We will expand our reach into new interdisciplinary areas that have social impact through a significant growth in programming.*
- *Culturally relevant and responsive pedagogy will be at the forefront of our approach to teaching and learning, allowing us to build inclusive academic programs that are both supportive and welcoming for learners from a diverse array of backgrounds.*
- *Our academic programs at Markham Centre Campus will be known nationally for leading the Information & Communication Technology sector's development through quality Work-Integrated Learning and strong employer partnerships.*
- *Our growth in part-time student enrolment will reflect the greater accessibility of our lifelong learning programs.*

Creating Opportunities & a Welcoming Community

We understand the challenges of today and know the challenges of the future represent opportunities that will be met by the people and knowledge we develop. To create solutions and provide a foundation for tackling both local and global challenges, we must build our community with people who have different experiences and perspectives. It is these differences that provide a richness in Lassonde's culture which enhances the teaching and research environment and, ultimately, the School's impact on the world. We strive to create a more diverse community by reducing barriers, creating a welcoming environment and providing a variety of supports that help individual community members reach their full potential. By empowering participation and collaboration in an equitable, diverse, and inclusive community our people thrive and have the capability to grasp the scope of problems and the integrated knowledge to design solutions. Lassonde will be a place where every learner – be it student, faculty, staff, alumni, or partner – can explore growth opportunities and continually expand their unique path in a lifelong learning journey.

Key Initiatives:

- *In achieving our Equity, Diversity & Inclusion (EDI) plan, we will grow a diverse, inclusive integrated teaching and research environment where interdisciplinary views flourish in safe, supportive physical and virtual spaces.*
- *We will empower diverse internal and external communities to organically grow by optimizing existing spaces and creating new ones with a culturally inclusive lens.*
- *The Kindergarten-to-Industry (K2I) Academy, a leading model in Canada that supports children, families, and teachers to feel confident that a career in STEM is for them, will result in a significant increase of young people (who are currently underrepresented) choosing a career in STEM and joining the Lassonde community.*
- *Create equitable outcomes by adopting a values-driven integrated approach to research and teaching in which every employee feels connected and appreciated for their contributions to the collective vision and purpose.*
- *Continue to invest in our people, environment, and infrastructure, including a new building, to cultivate a more inclusive interdisciplinary community who bring the diverse perspectives required to envision and devise engineering and science solutions that address environmental, economic and social problems.*

- *Our School will be recognized nationally for developing underrepresented groups in STEM, particularly those who are women, Indigenous, Black, and providing pathways to leadership roles, essential to achieving the UN's SDGs.*
- *Create and inspire progressive professional development models that internally recognize, value and celebrate achievements and knowledge acquisition (e.g., badging, skills passports, leadership certifications, etc.) of our community members.*
- *Design integrated planning structures that recognize individual contributions, investments and the coordinated efforts that give rise to the accomplishments that progressively advance the School.*

Building Success through Partnerships

Lassonde started with a pre-existing base of world-class researchers and unique programs that gave our School a solid foundation. With tremendous growth of the School came a variety of new programs, innovative structures, and supports as well as new faculty. The combination of a mature base, new structures, programs, opportunities, and people have resulted in an innovative School that has an outsized impact for our age. Our academics are educating learners in physical and virtual classrooms, as well as sharing knowledge with the general public through research reports in both academic journals and mainstream news. Faculty and researchers engage with learners and teach in different ways that resonate with their target audiences. Their contributions as educators will be recognized and valued for the difference they make to our learners, community, and society.

As the School continues to grow and mature in its capacity to deliver world-leading research, and leadership in educational program models in experiential and work integrated learning, our success has been, and will continue to be, achieved by our valued partnerships. The expansion of the School and its partnerships has been the formula for Lassonde building a strong reputation and emerging as one to watch in the rankings. We will continue to work together with our partners while proudly sharing and celebrating our collective success. Our local and global community will continue to expand and grow, attracting new partners unified in realizing our School's vision.

Key Initiatives:

- *We will be recognized for the ways in which we transform society through partnerships in new ideas, creative innovation & technology.*
- *We will consistently raise our rankings and aim to rank among the top engineering schools in the various internationally recognized Impact Rankings.*
- *Through our Markham Centre Campus we will be known internationally for our world-class model of university and employer collaborative partnerships.*
- *We will play a key role in leading and coordinating projects that support United Nations Educational, Scientific & Cultural Organization (UNESCO's) efforts to ensure a single global engineering standard and help low-income nations produce engineers with urgently needed requisite skills through training and mentoring.*
- *We will continue to establish and strengthen partnerships around the globe that exemplify our values and our commitment to improve the world for everyone.*