

## Change to Program/Graduate Diploma Academic Requirements Proposal Form

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*The following information is required for all proposals involving a minor modification to program/graduate diploma academic requirements. To facilitate the review/approval process, please use the headings below (and omit the italicized explanations below each heading).*

### 1. Program/Graduate Diploma: Civil Engineering

### 2. Effective Session of Proposed Change(s): Winter 2021

### 3. Proposed Change(s) and Rationale

#### **a) A description of the proposed modification(s) and rationale, including alignment with academic plans.**

The proposed modification is to reduce the admission requirements for English language proficiency from an IELTS score of 7.0 to 6.5 (and commensurate changes for other proficiency tests). The proposed changes would align this admission requirement for our program with the Faculty of Graduate Studies (see Appendix A, for “science-based” program), and the undergraduate requirements (see Appendix B, for “Bachelor of Engineering programs”). The undergraduate requirements were recently changed to an IELTS score of 6.5 (originally 7). Currently, the program’s admissions committee reviews all non-standard admissions (NSA), including cases when the IELTS score is below 7.0. The committee considers the supervisor’s statement, and the full application, to determine if the NSA flag can be waived. Over the last three years, the admissions committee has approved admission requests when the IELTS score is 6.5. With this proposed modification, no NSA cases for IELTS scores below 6.5 will be considered (i.e., the 6.5 level will be a hard cut-off). This has been approved by the program’s graduate program administration committee.

#### **b) An outline of the changes to requirements and the associated learning outcomes/objectives, including how the proposed requirements will support the achievement of program/graduate diploma learning objectives.**

There is no change to requirements and associated learning outcomes/objectives (attached as Appendix C). Students will continue to meet the graduate degree level expectation as set out by the Ontario Council of Academic Vice-Presidents (OCAV).

#### **c) An overview of the consultation undertaken with relevant academic units and an assessment of the impact of the modifications on other programs/graduate diplomas.**

The Graduate Program Administration Committee (GPAC) in the Graduate Program of Civil Engineering reviewed and approved the proposed changes. Following this, the Department of Civil Engineering approved the changes. No other programs are impacted by the proposed changes.

#### **d) A summary of any resource implications and how they are being addressed.**

There are currently no resource implications.

#### **e) A summary of how students currently enrolled in the program/graduate diploma will be accommodated.**

Current students will not be effected by this modification.

#### 4. Calendar Copy

Using the following two-column format, provide a copy of the relevant program/graduate diploma requirements as they will appear in the FGS Calendar - <http://gradstudies.yorku.ca/current-students/regulations/program-requirements/>.

Please note: Senate requires that FULL Calendar copy be provided. Please include the entire graduate program/diploma section, not just text that is being revised.

Please clearly and visibly indicate how graduate program/graduate diploma information has been changed using strikethrough (left column), bold, underlining, colours, etc. (right column).

English language proficiency is currently not listed in the calendar copy for Civil Engineering. However, the graduate admissions website (<http://futurestudents.yorku.ca/graduate/programs/civil-engineering>) lists the English language proficiency requirements for the program (also attached as Appendix D).

The modified text will mirror those shown in Appendix A for “science-based” programs.

Existing Program/Graduate Diploma Information (change from)	Proposed Program/Graduate Diploma Information (change to)
Insert program requirements from <a href="http://gradstudies.yorku.ca/current-students/regulations/program-requirements/">http://gradstudies.yorku.ca/current-students/regulations/program-requirements/</a>	

Please submit completed forms and required supporting documentation by email to the Coordinator, Faculty Governance– [fgsgovern@yorku.ca](mailto:fgsgovern@yorku.ca)

## English Language Proficiency

Because facility in the English language is essential to the pursuit of advanced studies at York University, an applicant will normally be required to demonstrate competence in English to the satisfaction of the Faculty of Graduate Studies and the sponsoring graduate program in order to be admitted to the program. Proof of language proficiency is required for applicants who do not meet one of the following criteria:

1. Their first language is English; OR
2. They have completed at least one year of full-time study at an accredited university in a country (or institution) where English is the official language of instruction.

York University reserves the right to require a successfully completed language proficiency test. Each program identifies the minimum language test score requirements. The following minimum guidelines will be used when English Language tests are required:

(a) Normally, for programs in the fine arts, humanities and social sciences, the following minimum scores will be required:

- a minimum TOEFL score of 600 (paper based) or 100 (internet based);
- an IELTS overall score of 7.5 (Academic Module);
- a York English Language Test (YELT) score of Band 1;
- YUELI Academic Program Level 9 with Distinction;
- YUELI Graduate Studies Preparation Program (GSPP) graduate with Distinction;
- a MELAB overall score of 85 with no component score less than 80;
- a CAEL overall score of 70 with no component score less than 60;
- a minimum CPE score of C, or;
- a minimum CAE score of B.

(b) Normally, for the graduate programs in Biology, Computer Science & Engineering, and Economics, the following minimum scores will be required:

- a minimum TOEFL score of 577 (paper based), or 90-91 (internet based);
- an IELTS overall score of 7 (Academic Module);
- a York English Language Test (YELT) score of Band 4;
- YUELI Academic Program Level 9 with Pass;
- YUELI Graduate Studies Preparation Program (GSPP) graduate with Honours;
- a MELAB overall score of 82 with no component score less than 80;
- a CAEL overall score of 65 with no component score less than 60;
- a minimum CPE score of C1, or;
- a minimum CAE score of C.

(c) Normally, for science-based programs (except Biology and Computer Science & Engineering) and Mathematics & Statistics, the following minimum scores will be required:

- a minimum TOEFL score of 550 (paper based), or 79-80 (internet based);
- an IELTS overall score of 6.5 (Academic Module);
- a York English Language Test (YELT) score of Band 6;
- YUELI Academic Program Level 9 with Pass;
- YUELI Graduate Studies Preparation Program (GSPP) graduate/Pass;
- a MELAB overall score of 80 with no component score less than 80;
- a CAEL overall score of 60 with no component score less than 60;
- a minimum CPE score of C1, or;
- a minimum CAE score of C.

## Future Students

### Language Proficiency Requirements

**⚠** For the **FW 2020-2021 session only**, students who cannot access the currently accepted language test may submit the Duolingo English Language Placement test. A Duolingo score of 115 or higher is required.

Programs at Keele Campus are offered in English, while programs at our Glendon Campus are offered in a bilingual environment (English and French). To gain admission, you must demonstrate language proficiency in your program's language of instruction. These are general guidelines only. Meeting minimum requirements does not guarantee admission. York University reserves the right to require a successfully completed language proficiency test.

[Which tests does York accept?](#) [Do I need to take a language test?](#)

#### Accepted language tests – minimum score required

FACULTY/PROGRAM	TOEFL* TEST OF ENGLISH AS A FOREIGN LANGUAGE YORK'S TOEFL CODE IS 0894	IELTS** INTERNATIONAL ENGLISH LANGUAGE TESTING SERVICE (ACADEMIC MODULE)
<b>School of the Arts, Media, Performance &amp; Design</b>		
<b>Environmental Studies</b>		
<b>Faculty of Education</b> (BA in Educational Studies)		
<b>Health</b> (except Nursing)	iBT: 83	6.5
<b>Lassonde School of Engineering</b> (except Bachelor of Engineering programs)		
<b>Liberal Arts &amp; Professional Studies</b>		
<b>Science</b>		
<b>Education:</b> Consecutive Education	See the Faculty of Education website for <a href="http://edu.yorku.ca/academic-programs/bachelor-of-education/full-time-consecutive-bed/how-to-apply/english-proficiency/">English language requirements</a> ( <a href="http://edu.yorku.ca/academic-programs/bachelor-of-education/full-time-consecutive-bed/how-to-apply/english-proficiency/">http://edu.yorku.ca/academic-programs/bachelor-of-education/full-time-consecutive-bed/how-to-apply/english-proficiency/</a> ).	
<b>Glendon</b> (see <a href="http://www.glendon.yorku.ca/futurestudents/apply/language-requirements/">Glendon website</a> ( <a href="http://www.glendon.yorku.ca/futurestudents/apply/language-requirements/">http://www.glendon.yorku.ca/futurestudents/apply/language-requirements/</a> ) for French language tests)	iBT: 83	6.5
<b>Health:</b> Nursing	iBT: 89	7
<b>Lassonde School of Engineering:</b> Bachelor of Engineering programs	iBT: 88 (no score below 20 in each section)	6.5 (no score below 6.0 in each section)
<b>Schulich School of Business</b>	iBT: 100	7.5

\*The **TOEFL Super Score** will not be accepted for language proficiency requirements. **The TOEFL iBT Special Home Edition is accepted.**

\*\*The **IELTS Academic test** is required for admission to York University. IELTS General will not be accepted for language proficiency requirements.

Any test scores submitted to York University for the purpose of satisfying your language requirements must have been achieved within the last two (2) years.

**ⓘ** Effective **May 2019** the YELT is no longer offered by York University. YELT scores remain valid for two years after the YELT test is taken. The last YELT test was offered on **March 15, 2019** and scores from that test will remain valid until **March 15, 2021**.

#### Special conditional admission for high-achieving applicants

For those required to meet language proficiency requirements, York may offer conditional admission, pending proof of language proficiency, to academically highly qualified students. Eligible candidates must present a minimum 80% average on Grade 12 U/M credits or standing equivalent to an "A" average in senior-level academic course prerequisites.

Conditionally admitted students must fulfil language proficiency requirements prior to the start of classes for the session to which they've been admitted as follows:

1. by presenting acceptable [TOEFL or IELTS \(/requirements/language-tests\)](#) scores; OR
2. successfully completing level nine at [York University's English Language Institute \(YUELI\)](http://www.yueli.yorku.ca/) (<http://www.yueli.yorku.ca/>) will also satisfy the English language requirement.

Conditionally admitted Francophone applicants may satisfy language requirements by taking the [French Language Placement Test](http://www.glendon.yorku.ca/futurestudents/apply/language-requirements/) (<http://www.glendon.yorku.ca/futurestudents/apply/language-requirements/>) offered by Glendon.

All applicants conditionally admitted will be notified by hard copy letter as well as by e-mail. Applicants may also check the status of their application via [MyFile \(http://www.yorku.ca/myfile\)](http://www.yorku.ca/myfile).

### Bridging to English studies at York

Students needing to improve their command of the English language may consider enrolling at the [York University English Language Institute \(http://continue.yorku.ca/english-language-institute/\)](http://continue.yorku.ca/english-language-institute/) (YUELI). YUELI provides the highest quality English language instruction, serving over 2,000 students from more than 50 different countries every year. YUELI's programs include university academic preparation programs for undergraduate and graduate students, summer language institutes and customized programs. Visit YUELI for a full listing of offerings and services.

For [exemptions to providing an official language test score \(/requirements/language-tests#exemptions\)](/requirements/language-tests#exemptions), visit our page on Language Proficiency Tests.

We may accept other language proficiency tests such as [Canadian Academic English Language Assessment \(http://www.cael.ca/\)](http://www.cael.ca/) (CAEL) and [Cambridge English Language Assessment \(http://www.cambridgeenglish.org/\)](http://www.cambridgeenglish.org/) (CAE, CPE).

❗ The [Senate Policy on Academic Honesty \(http://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/\)](http://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/) applies to applicants to York University and any submission of documentation be found to be false or modified without authorization is a breach of the policy and will lead to charges under the policy. Penalties can range from withdrawal of an offer of admission to expulsion to rescission of a degree.

Applicants who choose to work with an agent or immigration consultant during the process of submitting their applications and required documents to York University for admission consideration are fully responsible for the accuracy of their applications content and all related materials.


## 5. Program Structure, Learning Outcomes and Assessment

The intent of this section is to provide reviewers with an understanding of the knowledge, methodologies, and skills students will have acquired by the time they complete the program (i.e. the program learning outcomes), including the appropriateness of the program learning outcomes and how they will be supported and demonstrated. With that in mind, and with explicit reference to the relevant degree level expectations, it would be useful to focus on what students in the program will know and/or be able to do by the end of a defined period of time and how that knowledge, methodology and/or skill will be supported and demonstrated.

### 5.1 Provide a detailed description of the program learning outcomes and indicate how the program learning outcomes are appropriate and align with the relevant degree level expectations.

The degree level expectations as articulated in the six criteria established by the Ontario Council of Academic Vice-Presidents (OCAV, Table 5.1.1 for the MASc and Table 5.1.2 for the PhD programs) form the benchmark reference for the development of the graduate program in Civil Engineering. The table identifies how these criteria are addressed in the proposed program.

Table 5.1.1: MASc Degree Level Expectations established by OCAV

CRITERION	MASc degree: EXPECTED PERFORMANCE OF GRADUATE This degree is awarded to students who have demonstrated the following:
<b>1. Depth and breadth of knowledge</b>	<i>A systematic understanding of knowledge, including, where appropriate, relevant knowledge outside the field and/or discipline, and a critical awareness of current problems and/or new insights, much of which is at, or informed by, the forefront of their academic discipline, field of study, or area of professional practice.</i>
<p><b>PROGRAM ATTRIBUTE TOWARDS ACHIEVING THE CRITERION:</b></p> <p>The program aims for a strong technical foundation comprising a broad scope of technical courses including a number of core courses from the area of specialty, or major – the courses are delivered in a modular format to allow greater emphasis in areas of interest, but also to enable, through brief modules the fast updating of course material with state of the art information, and the versatile training in emerging technologies. The context of the program is at the center of current societal concerns regarding Ontario’s ageing infrastructure, needs for sustainability and community resilience to disasters from extreme natural events. A particular objective of the program is to endow the student with technical competence in computational issues required in civil engineering in the areas of modeling and simulation of civil engineering works. A critical awareness of current problems and new insights is promoted through training in research (through a compulsory course on Research Methods that is intended to expose the students to critical assessment of the state of the art in their chosen discipline) before the student embarks on their MASc thesis research. The same objective is also supported by a comprehensive seminar series on all fields of new and emerging research and technology, but also on engineering ethics, economics and business issues related to the civil engineering profession. Professional judgment, cognizance of the field, and soft skills (oral/written) are targeted through several activities (the GSP, the Research Thesis presentation and Defense, and the participation to dissemination activities under the guidance of the supervisor). Interdisciplinary understanding is encouraged by the fact that the program’s directions of emphases cut through the conventional fields of Civil Engineering as illustrated below:</p> <div style="display: flex; align-items: center; justify-content: center;"> <div style="border: 1px solid black; padding: 5px; margin-right: 20px;"> <p><b>Conventional Areas:</b></p> <ul style="list-style-type: none"> <li>Structural Engineering</li> <li>Geotechnical Engineering</li> <li>Hydro-technical Engineering</li> <li>Construction Management</li> <li>Transportation Engineering</li> <li>Environmental Engineering</li> </ul> </div> <div style="margin-right: 20px;">  </div> <div style="border: 1px solid black; padding: 5px;"> <p><b>Interdisciplinary Approach:</b></p> <ul style="list-style-type: none"> <li>Infrastructure Management, Assessment &amp; Maintenance</li> <li>Resilience to Extreme Events</li> <li>Sustainable development</li> </ul> </div> </div>	

CRITERION	<b>MASc degree: EXPECTED PERFORMANCE OF GRADUATE</b> This degree is awarded to students who have demonstrated the following:
<b>2. Research and scholarship</b>	<i>A conceptual understanding and methodological competence that</i> <i>a) Enables a working comprehension of how established techniques of research and inquiry are used to create and interpret knowledge in the discipline;</i> <i>b) Enables a critical evaluation of current research and advanced research and scholarship in the discipline or area of professional competence; and</i> <i>c) Enables a treatment of complex issues and judgments based on established principles and techniques;</i>
<b>PROGRAM ATTRIBUTE TOWARDS ACHIEVING THE CRITERION:</b> An appreciation of research as a means of knowledge generation and advancement is sought through several activities in the program – these include: -A compulsory course on research methodology – with particular emphasis on the management of data (including statistical methods) (L2 Module), design of experiments and in the critical assessment of the state of the art (L3 Module). -A leap in understanding the complexity of the field is attempted through the GSP (Graduate Studies Proposal) which is articulated individually by each student orienting their study-plan with reference to the context of the program in the directions of Infrastructure, Sustainability and Resilience under extreme events. -Contribution in the area of knowledge creation or advancement through the research conducted for the MASc Thesis; work conducted is meant to train highly-qualified engineers in establishing and carrying out a research plan and in consistent interpretation of research findings.	
<b>2. Research and scholarship</b>	<i>and, On the basis of that competence, has shown at least one of the following:</i> <i>a) The development and support of a sustained argument in written form; or</i> <i>b) Originality in the application of knowledge.</i>
<b>PROGRAM ATTRIBUTE TOWARDS ACHIEVING THE CRITERION:</b> Important actions are planned in the training program to enhance student capabilities to formulate and defend an argument, such as for example the delivery of the Thesis oral defense lecture in front of an audience of experts and in the graduate student workshop, as well as in the authorship of the GSP and the MASc thesis volume. Originality in the application of knowledge is promoted in the several projects conducted throughout the period of studies required by the graduate coursework.	
<b>3. Level of application of knowledge</b>	<i>Competence in the research process by applying an existing body of knowledge in the critical analysis of a new question or of a specific problem or issue in a new setting.</i>
<b>PROGRAM ATTRIBUTE TOWARDS ACHIEVING THE CRITERION:</b> The student by conducting independent research and participating in all the creative activities associated with the thesis project with guidance resulting in the creation of know knowledge or the novel application of existing knowledge. The program is designed and structured so as to provide plenty of opportunities for the student to test their ability in applying the body of knowledge when dealing with an emerging new issue in Engineering. In fact, a significant fraction of the student engagement through projects (GSP, MASc Thesis), and seminars is intended to enhance the abilities and technical skills required to tackle difficult engineering problems over all the phases ranging from conceptual issues (ethical, fiscal and business considerations) to purely technical (e.g. computer aided simulation). This competence and overall understanding are expected to be further improved through participation of the students to the Departmental Seminar sessions as well as in the complementary courses offered by the Lassonde School on professional development.	



CRITERION	<b>MASc degree: EXPECTED PERFORMANCE OF GRADUATE</b> This degree is awarded to students who have demonstrated the following:
<b>4. Professional capacity/autonomy</b>	<p><i>a) The qualities and transferable skills necessary for employment requiring:</i></p> <p><i>i) The exercise of initiative and of personal responsibility and accountability; and ii) Decision-making in complex situations;</i></p> <p><i>b) The intellectual independence required for continuing professional development;</i></p> <p><i>c) The ethical behavior consistent with academic integrity and the use of appropriate guidelines and procedures for responsible conduct of research; and</i></p> <p><i>d) The ability to appreciate the broader implications of applying knowledge to particular contexts.</i></p>
<p><b>PROGRAM ATTRIBUTE TOWARDS ACHIEVING THE CRITERION:</b></p> <p>Special emphasis is placed on the ethics in engineering and on professional competence in the form of the so-called soft skills (i.e. skills not strictly associated with engineering technical practice but however considered essential equipment for professional standing). Many of these skills are developed through practical implementation of the program requirements – for example, the blended learning approach which will be used in courses with a modular structure is designed to enhance intellectual independence for continuing professional development. The compulsory attendance of the seminar series which place emphasis on the emerging sciences and technologies and on Ethical and Business issues are intended to enhance the personal professional integrity of the individual and their sense of responsibility as professional engineers towards the society. The same is intended by the compulsory course on Engineering Ethics and one of the following two complementary courses offered for credit from the Lassonde School of Engineering:</p> <p>(a) GS/ENG 6001 Legal Aspects and Governance in Engineering, (b) GS/ENTR 4500 Entrepreneurship and Technology Ventures</p> <p>Also, the experience gained through TA-ing enhances the ability of the graduates to work in teams in a professional environment and to articulate concepts and ideas. The same is targeted for through the thesis research experience (planning and carrying out advanced level engineering work) and its defense to an expert audience. Major and minor emphases in two of the three emerging areas of Civil Engineering (Infrastructure-Resilience-Sustainability) require of the student through their GSP to position in this different framework the conventional, technical subdivision of knowledge.</p>	
<b>5. Level of communications skills</b>	<p><i>The ability to communicate ideas, issues and conclusions clearly.</i></p>
<p><b>PROGRAM ATTRIBUTE TOWARDS ACHIEVING THE CRITERION:</b></p> <p>Communication skills are systematically cultivated in the program through several activities including written projects (authoring the Research Thesis, and the GSP), delivery of thesis defense lecture in audience, and through the L1 module of the course on Research Methodology.</p>	
<b>6. Awareness of limits of knowledge</b>	<p><i>Cognizance of the complexity of knowledge and of the potential contributions of other interpretations, methods, and disciplines.</i></p>
<p><b>PROGRAM ATTRIBUTE TOWARDS ACHIEVING THE CRITERION:</b></p> <p>The students are encouraged to broaden their scope through the compulsory participation in Seminars presenting talks on emerging sciences and technologies. The interaction between the program emphases (Infrastructure, Resilience and Sustainability) becomes a focal point of reference for the students, in articulating through the GSP their own graduate studies profile. The modular format of the program, including many complementary L2 level modules enables speedy adjustment of the course material recognizing the evolution of the center of gravity of the state of the art. The graduate student has to complete their MASc thesis which, in the thesis defense, gives a clear definition of ones' own research contribution, limitations and future scope of the research study.</p>	

Table 5.1.2: PhD Degree Level Expectations established by the OCAV

CRITERION	<b>PhD degree: EXPECTED PERFORMANCE OF GRADUATE</b> This degree extends the skills associated with the Master's degree and is awarded to students who have demonstrated the following::
<b>1. Depth and breadth of knowledge</b>	<i>A thorough understanding of a substantial body of knowledge that is at the forefront of their academic discipline or area of professional practice including, where appropriate, relevant knowledge outside the field and/or discipline.</i>
<p><b>PROGRAM ATTRIBUTE TOWARDS ACHIEVING THE CRITERION:</b></p> <p>The program builds on strong technical foundation of MASc graduates who continue on to obtain a doctorate. Breadth and depth of understanding and knowledge are assessed early in the degree program through the <b>comprehensive exam</b> of the student's technical competence and the background. Research capabilities, if they were not already assessed at the Master Degree level, will be demonstrated through a mandatory independent study project with the student's supervisor before he/she is finally admitted to the degree (advancement to candidacy). – Continuing on with the same mode of delivery as in the MASc degree, required courses are delivered in a modular format to allow greater emphasis in areas of interest; however at this stage of the candidate's training the emphasis is placed on the PhD Thesis research where the student demonstrates the depth and breadth of understanding by organizing and carrying out original work either on basic or on applied research, dealing with emerging or unsolved engineering challenges, in the general context of the graduate Civil Engineering program (infrastructure, needs for sustainability and community resilience to disasters from extreme natural events). A particular objective of the program is to endow the student with technical competence in simulation, either through experiment (Laboratory / Field Work) or through Computation – these attributes will be sought as assessment criteria of the research methodology pursued by the candidate, in the annual evaluation of the student's progress. Enhancing knowledge outside the field is cultivated through the compulsory attendance of graduate seminars on all fields of new and emerging research and technology, and three compulsory courses from the Lassonde School of Engineering, one being a non-credit course on Engineering Ethics and the other two being credit-based courses for professional development. Professional judgment, cognizance of the field, and soft skills (oral/written) are also targeted through the participation of the student in the delivery of the Undergraduate program in the role of Teaching Assistant as well as the required dissemination activities as pre-requisites to thesis submission. Student progress is evaluated on an annual basis, particularly with reference to dissemination of his/her research findings to international expert audiences.</p>	
<b>2. Research and scholarship</b>	<p><i>a) The ability to conceptualize, design, and implement research for the generation of new knowledge, applications, or understanding at the forefront of the discipline, and to adjust the research design or methodology in the light of unforeseen problems;</i></p> <p><i>b) The ability to make informed judgments on complex issues in specialist fields, sometimes requiring new methods; and</i></p> <p><i>c) The ability to produce original research, or other advanced scholarship, of a quality to satisfy peer review, and to merit publication.</i></p>
<p><b>PROGRAM ATTRIBUTE TOWARDS ACHIEVING THE CRITERION:</b></p> <p>The quintessence of this criterion is embedded in the preparation of the Doctoral Dissertation. Several actions are intended to bring out and cultivate such characteristics as would prepare the candidate in his role as a future expert researcher or principal-investigator in his/her subsequent career. Research as a means of knowledge generation and advancement is evaluated critically in every step of the thesis production, through (1) The Annual Progress Report submitted to the Faculty of Graduate Studies by the supervisory committee who evaluates the student's performance in developing and adhering to a research methodology and research plan, (2) The requirement that at least two journal papers drawn from the Thesis Research are authored and submitted for review by the time of graduation, (3) The requirement that the student has participated in conference presentations of research findings, (4) The final evaluation of the research work by committee of experts at final defense. The above chain of requirements is intended to consolidate informed critical judgment at the forefront of the chosen discipline and academic scholarship.</p>	

<b>CRITERION</b>	<b>PhD degree: EXPECTED PERFORMANCE OF GRADUATE</b> This degree extends the skills associated with the Master's degree and is awarded to students who have demonstrated the following::
<b>3. Level of application of knowledge</b>	<i>The capacity to</i> <i>a) Undertake pure and/or applied research at an advanced level; and</i> <i>b) Contribute to the development of academic or professional skills, techniques, tools, practices, ideas, theories, approaches, and/or materials.</i>
<p><b>PROGRAM ATTRIBUTE TOWARDS ACHIEVING THE CRITERION:</b></p> <p>The PhD thesis research is in line with this criterion, since the requirement for approval of the candidate's Research plan through the many evaluation steps outlined above are intended to secure the originality and innovation of the work. The thesis represents independent work conducted by the student that involves planning and solving of scientific problems to lead to the advancement of knowledge. Contribution to the state of the art will be certified not only by the members of the PhD Thesis Committee but through the interaction and peer evaluation received upon dissemination of the results to Journals and Conferences which are pre-requisite to conferring the degree. Furthermore, the student's engagement through the seminars series is intended to enhance the abilities and technical skills required to tackle difficult engineering problems over all the phases ranging from conceptual issues (ethical, fiscal and business considerations) to purely technical (e.g. computer aided simulation).</p>	
<b>4. Professional capacity/autonomy</b>	<i>a) The qualities and transferable skills necessary for employment requiring the exercise of personal responsibility and largely autonomous initiative in complex situations;</i> <i>b) The intellectual independence to be academically and professionally engaged and current;</i> <i>c) The ethical behavior consistent with academic integrity and the use of appropriate guidelines and procedures for responsible conduct of research; and</i> <i>d) The ability to evaluate the broader implications of applying knowledge to particular contexts.</i>
<p><b>PROGRAM ATTRIBUTE TOWARDS ACHIEVING THE CRITERION:</b></p> <p>Special emphasis is placed on the ethics in engineering and on professional competence in the form of the so-called soft skills (i.e. skills not strictly associated with engineering technical practice but however considered essential equipment for professional standing). Many of these skills are developed through practical implementation of the program requirements – for example, the blended learning approach which will be used in courses with a modular structure is designed to enhance intellectual independence for continuing professional development. The compulsory attendance of the Engineering Ethics course (ENG6000) and the seminar series which place emphasis on the emerging sciences and technologies and on Ethical and Business issues are intended to enhance the personal professional integrity of the individual and their sense of responsibility as professional engineers towards the society. The responsibility placed by the supervisory committee on the student, in developing his/her research methodology and research plan, which is revisited on an annual basis, aims to enhance the ability for decision making in complex situations and the intellectual independence and autonomy commensurate to the professional qualification conferred with the Doctoral Degree. To this end, the doctoral student is expected to attend one of the following graduate courses offered by the Lassonde School, on professional development, which will be critical in strengthening the students' confidence in their appreciation of the economic climate and professional opportunities:</p> <p>(a) LE/GS/MENG 6001 Legal Aspects and Governance in Engineering, (b) ENTR 4500 Entrepreneurship and Technology Ventures</p> <p>Furthermore, teaching and Research Assistantships granted to the graduate students are also intended to benefit them by giving them intellectual responsibilities with professional-level expectations that go through procedures of formal evaluation.</p> <p>Personal responsibility and accountability is cultivated through the requirements of annual meeting with the supervisory committee and submission of the Annual Activity Report that outlines progress made since the last meeting.</p>	

<b>CRITERION</b>	<b>PhD degree: EXPECTED PERFORMANCE OF GRADUATE</b> This degree extends the skills associated with the Master's degree and is awarded to students who have demonstrated the following::
<b>5. Level of communications skills</b>	<i>The ability to communicate complex and/or ambiguous ideas, issues and conclusions clearly and effectively.</i>
<b>PROGRAM ATTRIBUTE TOWARDS ACHIEVING THE CRITERION:</b> Communication skills are systematically cultivated in the program through several activities including written projects (Dissertation Volume, papers), participation of dissemination activities with presentations to expert audiences, and through the L1 module of the course on Research Methodology. TA duties in the undergraduate program, which are subject to anonymous evaluation by the students, have an important contribution towards the doctoral candidate's training in communication of complex concepts.	
<b>6. Awareness of limits of knowledge</b>	<i>An appreciation of the limitations of one's own work and discipline, of the complexity of knowledge, and of the potential contributions of other interpretations, methods, and disciplines.</i>
<b>PROGRAM ATTRIBUTE TOWARDS ACHIEVING THE CRITERION:</b> The students are encouraged to broaden their scope through the compulsory participation in Seminars presenting emerging sciences and technologies. The interaction between the program emphases (Infrastructure, Resilience and Sustainability) becomes a central point of reference in formulating the scope of research conducted in the department by its doctoral students. The modular format of the program, including many complementary L2 level modules enables speedy adjustment of the course material recognizing the evolution of the center of gravity of the state of the art. A most important contribution towards realization of one's own limits is the participation of the student in national and international conferences with presentations of research findings. The graduate student has to complete their PhD Dissertation which gives a clear definition of ones' own research contribution, limitations and future scope of the research study.	

5.2 Address how the program curriculum and structure supports achievement of the program learning outcomes. For research-focused graduate programs, comment on the nature and suitability of the major research requirement(s) for degree completion. For undergraduate programs, comment on the nature and suitability of students' final-year academic achievement in the program.

The basic components of the curriculum outlined in Table 4.1.1, have been discussed in detail with reference to the learning outcomes according with the established criteria set by the OACV, in the corresponding cells of Table 5.1.1 and 5.1.1. The graduate program is focused in research, combining a moderate emphasis in advanced level coursework intended to endow the students with the technical skills beyond what they obtained during their undergraduate study, so as to be competent in the application of advanced methods and techniques from the body of knowledge; complementary training in the form of credit and non-credit activities are included in order to provide the students with additional capabilities in the areas of professional development including communication, ethics, business, and the legal framework of engineering operation.

The primary achievement of the student is production and defense of a Research Thesis in an original area of study with documented contribution to the state of the art and in creation of new knowledge, to an extent and intensity that is commensurate to the degree level. Each graduate student is supervised by a departmental faculty member and is engaged in research immediately upon joining the program. The research progress and output are monitored and evaluated by a supervisory committee appointed according with the procedures set by the Faculty of Graduate Studies. The program is structured by design to achieve the research objectives listed in Tables 5.1.1 and 5.1.2, through a multi-stage assessment procedure of the research conducted; however attainment of the learning objectives takes advantage of the relevant course based activities (e.g. compulsory participation in the department's seminar series). By systematically engaging the graduate student to activities of communication of their research findings, either to the supervisory committees, the thesis defense, seminar participation, and dissemination of findings in national and international forums, the program intends to instill the students with professional attitude towards their work, their peers, and their discipline in general.

5.3 Address how the methods and criteria for assessing student achievement are appropriate and effective relative to the program learning outcomes and Degree Level Expectations.

Student’s performance will be evaluated using a range of assessment tools that refer both to performance in courses taken and progress in research. Thus in courses that are organized in modules, the student will be evaluated upon completion of each module. Tests and quizzes, assignments and exams will be used in courses of a generic content. Multidisciplinary or advanced design courses will be graded based on project work, field work, experimental work, and oral/written presentations against the learning targets listed in Tables 5.1.1 and 5.1.2.

Defense of graduate thesis will be evaluated by an examination committee appointed as per the FGS regulations. Written Reports and oral presentations will be marked using the following rubric: 15% for quality of presentation material and delivery, 25% for critical assessment of the state of the art, 25% for completeness of work, and 40% for quality of work conducted (content). The above methods are intended to highlight a range of the students’ capabilities as described in detail in the following table:

Criterion	Evaluation Method	Evaluation Scheme
1. Depth and breadth of knowledge	Exams, Tests, Quizzes Assignments, Written Reports & Projects	$\geq 60\%$ of course mark $\leq 40\%$ of course mark
2. Research and scholarship 3. Level of application of knowledge 6. Awareness of limits of knowledge	Written Reports & Oral presentations	10-20% for quality of presentation material, 20-25% for critical assessment of the state of the art 20-30% for completeness of work, 40-50% for content
4. Professional capacity/ autonomy 5. Level of communications skills	Research Plans and Methodology Research Report & Projects (individual)	10-20% for quality of presentation material and delivery, 20-30% for completeness of work, 20-30% for Innovative Aspects, 40-50% for content

With regards to each of the learning objectives detailed in the preceding, student assessment criteria and methods, and their alignment with GDLEs of the MASc and PhD programs are detailed in the Tables 5.3.1 and 5.3.2 (on the next two pages).

Table 5.3.1: Methods and Criteria for the Assessment of MASc Degree Level Expectations (DLEs)

DLE	Assessment Methods and Criteria
1- Depth and Breadth of Knowledge	<p><u>It is expected that every MASc student will:</u></p> <ul style="list-style-type: none"> <li>- Successfully defend their MASc thesis in an examination session following the guidelines specified by the Faculty of Graduate Studies at York University.</li> <li>- Obtain a minimum grade of B- in the required coursework.</li> <li>- Submit Annual Progress Reports (APRs) and demonstrate satisfactory progress in research project between two successive APRs.</li> <li>- Deliver at least one presentation at the Department's Annual Graduate Symposium.</li> <li>- Attend 10 departmental seminars to receive a pass grade in the non-credit Graduate Seminar course.</li> </ul>
2- Research and Scholarship	<ul style="list-style-type: none"> <li>- Research progress is mainly assessed by the supervisor on the basis of one-to-one or group meetings.</li> <li>- The MASc thesis will be evaluated by a committee with domain knowledge expertise and one graduate faculty member at arm's length from the dissertation, usually from outside the Department.</li> <li>- Students must successfully defend their thesis in Oral Examination which also will be assessed by the examination committee following FGS guidelines</li> <li>- Attend 10 departmental seminars to receive a pass grade.</li> </ul>
3- Level of Application of Knowledge	<ul style="list-style-type: none"> <li>- Participate under guidance to dissemination of research results – activity reflected in the Annual Progress Report (APR) and evaluated.</li> <li>- Level of application of knowledge is assessed by the supervisor and the consideration of the student performance in his/her coursework.</li> </ul>
4- Professional Capacity / Autonomy	<ul style="list-style-type: none"> <li>- Students are expected to receive a pass grade on a mandatory Engineering Ethics course.</li> <li>- Students are expected to pass all the credit course requirements</li> <li>- Students should be able to create design solutions and/or develop research programs that take ethical, social, environmental, legal, and regulatory influences into account</li> </ul>
5- Level of Communication Skills	<ul style="list-style-type: none"> <li>- Presentation skills will be evaluated during the Departmental Workshop event by two faculty members as session referees, and fellow graduate students. Evaluations will be used to determine for selection of the best presenter</li> <li>- Students' Activity Reports will be assessed by the supervisor and members of the Graduate Studies Committee on a yearly basis.</li> <li>- These will be evaluated by examination committees following instructions provided by FGS</li> </ul>
6- Awareness of Limits of Knowledge	<ul style="list-style-type: none"> <li>- Students are expected to include a section in their theses to discuss the limitations and future directions of the conducted research.</li> </ul>

Table 5.3.2: Methods and Criteria for Assessment of PhD Degree Level Expectations (DLEs)

DLE	Student Assessment Methods and Criteria
1- Depth and Breadth of Knowledge	<p>In the PhD thesis the candidate is expected to critically assess a complex problem with opposing and conflicting positions, systematically review, analyze, assimilate and interpret a body of scientific literature and innovations in a number of fields outside ones area of research but pertinent to the research being undertaken, and identify gaps in the literature and opportunities for new research to address shortcomings in the field.</p> <p><u>Assessment of performance:</u> It is expected that every Ph.D. student will:</p> <ul style="list-style-type: none"> <li>- Pass the Ph.D. Comprehensive examination within 12 months of starting the program.</li> <li>- Present and successfully defend PhD Research Proposal within 24 months of starting the program.</li> <li>- Successfully defend the student's PhD thesis in an examination session according with the guidelines provided by the Faculty of Graduate Studies at York University.</li> <li>- Obtain a minimum grade of B- in the required coursework.</li> <li>- Submit Annual Progress Reports (APRs) and demonstrate satisfactory progress in research project between two successive APRs.</li> <li>- Deliver at least two presentations during the course of the PhD program at the Department's Annual Graduate Symposium.</li> <li>- Attend 10 departmental seminars to receive a pass grade in the non-credit Graduate Seminar course.</li> </ul>
2- Research and Scholarship	<p>The PhD student is expected to identify under the guidance of their supervisor, novel and significant open research questions, develop a research methodology to address the issues in hand, to adjust the methodology to the limitations of the available resources, to articulate the expected outcomes and how this will lead to the advancement of knowledge, address risks to the successful outcome of the research, critically assess the literature and eventually support all these choices in the thesis defense.</p> <p><u>Assessment of performance:</u> Expose the research progress in regular frequent one-to-one meetings with the supervisor, submit APRs to the supervisory committee, taking part in meetings to discuss and present research results.</p> <ul style="list-style-type: none"> <li>-The PhD thesis will be evaluated by a committee of experts according with the regulations of the Faculty of Graduate Studies. Oral defense is part of the evaluation requirements.</li> <li>-The student will successfully complete the Graduate Seminar Series course</li> </ul>
3- Level of Application of Knowledge	<p>In conducting the PhD research the student will implement research experimentation independently, conduct independent research appreciating limitations of one's knowledge and seeking support and advice when warranted, keep track of new simulation methods and design novel experimental setups as required by carrying out their study, participate in dissemination of knowledge.</p> <p><u>Assessment of performance:</u></p> <ul style="list-style-type: none"> <li>- Dissemination efforts are recorded in APRs and are used by the supervisory committee for student evaluation.</li> <li>- Research plans are discussed in detail and evaluated by the supervisory committee</li> <li>- Successful passing of comprehensive examination within 12 to 18 months of the program.</li> </ul>
4- Professional Capacity / Autonomy	<p>The PhD students are responsible for their research, and have greater autonomy in adjusting their own rate of progress.</p> <p><u>Assessment of performance:</u></p> <ul style="list-style-type: none"> <li>- The students' individual progress towards meeting program requirements and timelines is assessed by the supervisory committee reviewing the APRs;</li> <li>- Students are expected to receive a pass grade on a mandatory Engineering Ethics course.</li> <li>- Students are expected to pass all the credit course requirements</li> <li>- Students should be able to: evaluate how ethical, social, environmental and legal issues may affect the students' research; and, analyze critical issues within their research areas and broadly-related fields</li> </ul>
5- Level of Communication Skills	<p>The PhD student is expected to present material in a coherent and organized form in a public setting, using appropriate media, and communicate effectively, receiving feedback, addressing different methodological opinions and questions. To also present research findings in national or international conferences, and to give a seminar in the Departmental Graduate Seminar Series.</p> <p><u>Assessment methods:</u></p> <ul style="list-style-type: none"> <li>- Students' APRs will be assessed by the supervisory committee on an annual basis.</li> <li>- PhD Thesis will be evaluated by the examination committee according with the regulations of the Faculty of Graduate Studies.</li> </ul>
6- Awareness of Limits of Knowledge	<ul style="list-style-type: none"> <li>- Within the framework of their research work the doctoral students will identify the implications of the work in the multidisciplinary fields that form the thematic areas of the department and will explain how advancement of knowledge in this interdisciplinary context is advanced by their research.</li> <li>- Students are expected to include a section in their theses to discuss the limitations and future directions of the conducted research.</li> </ul>

## Graduate Admissions

(/graduate)

### PURSUE GRADUATE PROGRAM IN CIVIL ENGINEERING

[About Program](#) [Request More Information](#) [Program Website](http://civil.lassonde.yorku.ca/graduate-studies/)

What do subway systems, a working water faucet, rehabilitated mining landscapes, and the Gardiner Expressway have in common? All of them depend on civil engineers for their construction and functioning. Make a lasting contribution to society by understanding and shaping the built environment sustainably.

York's graduate program in Civil Engineering, housed in an emerging department with innovators committed to sustainable, resilient infrastructure, offers the perfect place to take on the challenges of today with solutions for tomorrow.

### Choose Your Degree

The Graduate Program in Civil Engineering offers thesis-based MASc and PhD degrees with areas of specialization in one or more of the following sub-disciplines: Structural Engineering, Geotechnical Engineering, GeoEnvironmental and Environmental Engineering, Water Resources Engineering, and Transportation Engineering.

In the face of rapid global population growth, undeniable shifts in climatic patterns and the consequences of these changes, research and teaching in the Civil Engineering graduate program focus on sustainable development through the use of recycled and renewable construction materials, landscape rehabilitation and the use of marginal-quality land such as closed municipal landfills and degrading permafrost. The department also emphasizes the design of civil infrastructure capable of withstanding extreme weather conditions, as well as the replacement or appropriate retrofitting of existing structures.

### What Can I Do with a Graduate Degree in Civil Engineering?

Given the breadth of knowledge and skills provided in a Civil Engineering program, graduates will find fulfilling and challenging professional opportunities in a host of diverse areas. These may include:

- Construction
- Consulting
- Water systems
- Environmental technology and consulting
- Transport infrastructure
- Utilities
- Marketing
- Education
- Patent law

According to Forbes, Civil Engineering ranks among the top ten graduate degrees for job security and earning power.

Check out these other useful resources:

- [Canadian Society for Civil Engineering](http://csce.ca/)
- [American Society of Civil Engineers](http://www.asce.org/)

### Degrees Offered

#### MASc

PROGRAM LENGTH (FULL-TIME)	PROGRAM COMPONENT(S)	MINIMUM REQUIRED GPA
2 year(s)	• Thesis	B
<b>FALL ENTRY</b>	<b>WINTER ENTRY</b>	
• Full-time • Part-time	• Full-time • Part-time	
<b>DEADLINE - FALL (ALL APPLICANTS)</b>	<b>DEADLINE - WINTER (ALL APPLICANTS)</b>	
2020-02-15	2020-05-15	

#### ENGLISH PROFICIENCY REQUIREMENT

⚠ MELAB is no longer offered by Michigan Language Assessment. York will no longer accept results for MELAB after July 2020.

Minimum TOEFL (Paper-based)	577
Minimum TOEFL (Internet-based)	90-91
IELTS (Academic Module)	7
YUELI	Academic Program Level 9 with Pass
YUELI Graduate Studies Preparation Program (GSPP)	Graduate with Honours
CAEL	Overall score of 65, no component score less than 60
Minimum CPE Score	C1
Minimum CAE Score	C

#### PhD

PROGRAM LENGTH (FULL-TIME)	PROGRAM COMPONENT(S)	MINIMUM REQUIRED GPA
4 year(s)	• Comprehensive examination(s) • AND Research Proposal • AND Dissertation	B



**FALL ENTRY**

- Full-time
- Part-time

**DEADLINE - FALL (ALL APPLICANTS)**

2020-02-15

**WINTER ENTRY**

- Full-time
- Part-time

**DEADLINE - WINTER (ALL APPLICANTS)**

2020-05-15

**ENGLISH PROFICIENCY REQUIREMENT**

▲ MELAB is no longer offered by Michigan Language Assessment. York will no longer accept results for MELAB after July 2020.

Minimum TOEFL (Paper-based)	577
Minimum TOEFL (Internet-based)	90-91
IELTS (Academic Module)	7
YUELI	Academic Program Level 9 with Pass
YUELI Graduate Studies Preparation Program (GSPP)	Graduate with Honours
CAEL	Overall score of 65, no component score less than 60
Minimum CPE Score	C1
Minimum CAE Score	C

**Additional Admission Requirements****Required Forms**

**Application Form** ([http://futurestudents.yorku.ca/graduate/apply\\_now](http://futurestudents.yorku.ca/graduate/apply_now))

**Recommendation Form** (<https://apps4.sis.yorku.ca/Apps/WebObjects/AAS.woa/wa/DirectAction/student>)

and **Supplementary Information Form** (<https://apps4.sis.yorku.ca/Apps/WebObjects/AAS.woa/wa/DirectAction/student>)

(Accessed through MyFile; forms will be available within 48 hours after you submit your application.)

**Other Requirements**

- A completed prescribed application form.
- Course transcripts\* for bachelor's degree (for admission to MASc program)
- Course transcripts\* for bachelor's and master's degrees (for admission to PhD program)
- A cover letter elaborating the applicant's professional goals and motivation for graduate studies
- Curriculum vitae of the applicant
- Two confidential letters of recommendation
- Proof of English language proficiency (for international applicants).

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