



**Graduate
Studies**

Office of the Vice-Provost and Dean
Yeates School of Graduate Studies

Final Assessment Report (FAR) and Implementation Plan

Periodic Program Review (PPR)

Civil Engineering (PhD, MAsC, MEng)

Last Updated: May 13, 2019

FINAL ASSESSMENT REPORT

In accordance with the University Institutional Quality Assurance Process (IQAP), this final assessment report provides a synthesis of the external evaluation and the internal response and assessments of the graduate program in **Civil Engineering (PhD, MASc, MEng)**. This report identifies the peer review identified strengths of the program, together with opportunities for program improvement and enhancement, and it sets out and prioritizes the recommendations that have been selected for implementation.

The report also includes an Implementation Plan that identifies who will be responsible for approving the recommendations set out in the final assessment report; who will be responsible for providing any resources entailed by those recommendations; any changes in organization, policy or governance that will be necessary to meet the recommendations and who will be responsible for acting on those recommendations; and timelines for acting on and monitoring the implementation of those recommendations.

CIVIL ENGINEERING EXECUTIVE SUMMARY

The Department of Civil Engineering has been undergoing transformative change in which collaboration and synergy have figured prominently. In the past decade, student numbers have grown by nearly 150% at the undergraduate level and over 400% at the graduate level, however over the past 7 years (since 2010) the graduate enrolment remains relative stable (average 64 – 9 PhD and 55 master’s students) over the last few years.

Over the last seven years, the Program has been greatly enhanced by the tripled number of publications by faculty and increased publications by students (about 5 times that of 2008), and about a 35% increase in faculty annual funding, as well as outstanding achievements made by faculty members and a large number of awards received by students. This enhancement is also attributed to the increased and improved research infrastructure.

The Program has continued benefiting from its multi-disciplinary nature, especially by integrating geomatics into teaching and research and by conducting collaborative research that involves other disciplines such as computer science, information technologies, management and social science. The current program curriculum satisfies the need to achieve the program learning outcomes, but nevertheless requires a systematic review and update.

In the next five years, the Program will work on implementing the four strategic development goals related to graduate studies, focusing on curriculum, quality of training, recruitment of quality students and student engagement and success. The Program plans to undertake a systematic review of its curriculum and courses to evaluate the existing graduate course curriculum for possible restructuring to respond to graduate students’ concerns regarding the

level of competency of some of the graduate courses. Another focus will be on developing new graduate studies fields in Geotechnical Engineering and Infrastructure and Construction Management.

Overall, the Program has been successful in preparing students that achieve the program learning outcomes upon the completion of their program of studies. The strengths and weaknesses, identified through this self-study, offers some opportunities for the Program to continue its effort in addressing challenges faced going forward.

Periodic Program Review and Peer Review Team Civil Engineering (PhD, MASC, MEng).

The graduate program in Civil Engineering (PhD, MASC, MEng), Faculty of Engineering and Architectural Science (FEAS), submitted a Self-Study Report to the Yeates School of Graduate Studies that outlined program descriptions and learning outcomes, an analytical assessment of the program, program data including data from student surveys and the standard data packages. Course outlines and CVs for full-time faculty members were also appended.

Two external and one internal arm's-length reviewers were selected from a set of proposed candidates. The Peer Review Team (PRT) for the Periodic Program Review (PPR) of the graduate program in Civil Engineering (PhD, MASC, MEng) consisted of Dr. Ata Khan (Carleton University), Dr. Amir Fam (Queen's University), and Dr. Henry Cheng (Ryerson University).

The appraisal committee spent two days at Ryerson. The visit included interviews with the University and Faculty Administration including the Provost and Vice-President Academic, FEAS Associate Dean, Vice-Provost and Dean Yeates School of Graduate Studies (YSGS); Associate Dean YSGS, Graduate Program Director of the Graduate Program, and meetings with Faculty, a group of current students, and support staff.

The PRT site visit was conducted on Dec 10 and 11, 2018. The PRT report was communicated to the Associate Dean, YSGS on Jan 2, 2019, and the response to the report from Civil Engineering was communicated on Mar 4, 2019.

Summary of PRT Recommendations with Graduate Program and YSGS Responses, and Implementation Plan

The PRT raised a number of concerns and recommendations. The first 17 address academic recommendations and responses, and the 18th is an administrative/financial recommendation and response.

A report on the progress of these initiatives will be provided in the Follow-up Report which will be due in one year from the date of Senate approval.

IMPLEMENTATION PLAN

Recommendation	Program Response	YSGS Response	Proposed Action	Responsibility to Lead Follow Up	Timeline for Addressing Recommendation
ACADEMIC RECOMMENDATIONS					
1. Increase capacity by adding three new faculty members in the Transportation Geotechnical, and Project Management areas.	Agreement. Submit annual requests from the Department to the FEAS Dean. This will occur on an ongoing basis (full program response on page 4 of its response to the PRT report).	The hiring of new RFA faculty is outside of YSGS's purview. YSGS encourages the program to continue to work with the FEAS Dean's Office on issues related to its faculty complement. YSGS also notes that the PRT "observed that there exists a gender imbalance among the faculty members of the program" (page 8 of PRT report). YSGS encourages the program to consider this issue in future faculty hiring.	Submit annual requests to FEAS Dean.	Civil Engineering Department Chair	Ongoing
2. Reinstate the PhD program in transportation.	Agreement. Consult with YSGS if formal approval is required. This will occur in 2019 (full program response on page 5 of its response to the PRT report).	YSGS notes that the addition of Quality Council approved "fields" is considered a major curriculum revision under Ryerson University Policy 127. YSGS encourages the program to consult with the Associate Dean, Graduate Studies in FEAS and the Associate Dean, Programs in YSGS on any potential curriculum changes.	Consult with Associate Deans in FEAS and YSGS; develop curriculum change proposal; obtain the approval of the graduate program council; submit change request	Associate Chair for Graduate Studies	Before the end of Fall 2019

Recommendation	Program Response	YSGS Response	Proposed Action	Responsibility to Lead Follow Up	Timeline for Addressing Recommendation
3. Enhance the geotechnical engineering part of the curriculum.	Agreement. This is one strategy for improving graduate course offerings under the Department's 5-year Strategic Plan. The program will continue to work on initiatives to identify the best options. This will occur in 2019-2020 (full program response on page 5-6 of its response to the PRT report).	YSGS notes that any changes to the program's curriculum must be made in accordance with Ryerson University Policy 127. YSGS encourages the program to consult with the Associate Dean, Graduate Studies in FEAS and the Associate Dean, Programs in YSGS on any potential curriculum changes.	Continue work on the indicatives to identify the best option(s); create a development plan	Associate Chair for Graduate Studies	2019/2020
4. Infrastructure Engineering should be strengthened, in association with Structures, Geomatics, and Transportation.	Agreement. The Program has also been working on two new initiatives, including a PMDip in Infrastructure Management and the field of infrastructure asset management within the current Master's and PhD programs. Further, the Program has been involved in discussion with the Department of Architectural Science about a possible new joint PMDip and Graduate Programs on Project, Construction and Infrastructure Management. The Program will continue to work on these initiatives to identify the best option(s) (full program response on page 6 of its response to the PRT report).	<p>As above, YSGS notes that any changes to the program's curriculum must be made in accordance with Ryerson University Policy 127. YSGS encourages the program to consult with the Associate Dean, Graduate Studies in FEAS and the Associate Dean, Programs in YSGS on any potential curriculum changes.</p> <p>YSGS also notes that if the program is interested in developing a PMDip it must be done in accordance with the Ontario Universities Council on Quality Assurance Quality Assurance Framework. Moreover, the development of any graduate programs (including PMDips) must be done in accordance with Ryerson University Policy 112. YSGS encourages the program to consult with the Associate Dean, Graduate Studies in FEAS and the Associate Dean, Programs in YSGS on any potential PMDips or other graduate programs.</p>	Continue work on the options (i.e., additional field, new PMDip and joint program); create a development plan	Associate Chair for Graduate Studies	2019/2020

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<p>5. Systematically review the curriculum. Specifically, course contents can be fine-tuned to meet Provincial PhD and MASc degree level expectations. It is recommended to monitor and implement quality control of graduate courses such that content is not watered-down to meet the abilities of certain student groups. This penalizes stronger and/or more specialized students.</p>	<p>Agreement. The Program is currently undergoing a systematic review of its current curriculum together with course contents. This will be completed in 2019 (full program response on page 6 of its response to the PRT report).</p>	<p>YSGS supports the program response. As above, it notes that any curriculum modifications must be done in accordance with Ryerson University Policy 127. YSGS encourages the program to pay particular attention to ensuring its learning outcomes are met as a part of the curriculum review.</p>	<p>Revisit the program's learning outcomes; review the program's curriculum and courses; review the mapping between courses and the learning outcomes</p>	<p>Associate Chair for Graduate Studies</p>	<p>2019/2020</p>
<p>6. Consider offering courses in statistical methods and GIS.</p>	<p>Agreement. The Program will consider this as a part of its curriculum review (full program response on page 6 of its response to the PRT report).</p>	<p>YSGS supports the program response. As above, it notes that any curriculum modifications must be done in accordance with Ryerson University Policy 127. YSGS also encourages the program to explore if cross-listings with other programs could address any identified course needs, so as to avoid unnecessary duplication.</p>	<p>Explore the option of co-listing of CE8140 Statistics in Engineering vs. developing a new statistics course (Note: the program has already offered CV8505 GIS for Civil Engineering)</p>	<p>Associate Chair for Graduate Studies</p>	<p>2019/2020</p>

Recommendation	Program Response	YSGS Response	Proposed Action	Responsibility to Lead Follow Up	Timeline for Addressing Recommendation
7. Consider offering part-time MASc and PhD programs.	Agreement. The Program will discuss these options in a Graduate Program Council meeting (full program response on page 7 of its response to the PRT report).	<p>YSGS notes that any changes to the program's curriculum must be made in accordance with Ryerson University Policy 127. Under the policy, the addition of a part-time option is considered a major curriculum modification. YSGS also notes that consultation with the University Planning Office would be required in order to determine the revenue implications of such a change.</p> <p>YSGS encourages the program to consult with the Associate Dean, Graduate Studies in FEAS and the Associate Dean, Programs in YSGS on any potential curriculum changes.</p>	<p>Consult with Associate Deans in FEAS and YSGS; discuss within the Graduate Program Council</p> <p>Consult with UPO if the Council decides to add part-time options; develop the curriculum change proposal</p>	Associate Chair for Graduate Studies	<p>Fall 2019</p> <p>Winter 2020</p>
8. Consider offering some graduate courses in the evening.	Agreement. The Program will discuss these options in a Graduate Program Council meeting (full program response on page 7 of its response to the PRT report).	YSGS supports the program response. YSGS encourages the program to consider offering courses that accommodate student demand (e.g., spring/summer offerings). YSGS also notes that these decisions would also have implications for any potential part-time option (as discussed above).	Encourage faculty members to teach classes from 6:00 to 9:00 pm	Department Chair, Associate Chair for Graduate Studies	Ongoing
9. Consider offering the MEng program in both course and project formats, as well as allowing students to move from one format	The Program believes this is already possible in the current program (full program response on page 7 of its response to the PRT report).	YSGS supports the program response. YSGS agrees this is already possible in the current program.	N/A	N/A	N/A

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to the other.					
10. Consider accepting University of Toronto and McMaster University students in Ryerson University courses.	The Program notes that this is already being done through the OVGS (Ontario Visiting Graduate Student) program. The Program has been accepting students from University of Toronto, McMaster University, University of Waterloo and Western University, etc. through the OVGS program, and will continue to do so.	YSGS supports the program response. YSGS notes that OVGS is a mechanism for graduate students registered at other universities to take courses at Ryerson University.	N/A	N/A	N/A
11. Investigate expanding the recruitment of self-funded students and domestic students outside of Ontario.	Agreement. In 2019, the Program will explore ways of better utilizing scholarship programs in other countries (full program response on page 7 of its response to the PRT report).	YSGS supports the program response.	Explore ways of better utilizing scholarship programs of other countries	Associate Chair for Graduate Studies	2019/2020
12. Develop a plan and tools to assess student progress towards GDLEs.	Agreement. The current course-GDLE mapping table will be reviewed in the context of the systematic review of the Program curriculum and courses. A plan and effective tools to monitoring the progress will be developed.	YSGS supports the program response. YSGS encourages the program to consult with Ryerson University's curriculum development consultants to explore potential options. YSGS also notes that any potential changes to the program's learning outcomes must be made in accordance with Ryerson University Policy 127.	Consult with the university curriculum development consultants; develop plan and tools	Associate Chair for Graduate Studies	2019/2020
13. Develop strategies to recruit out-of-province domestic graduate students.	Agreement. The Program's website is now undergoing redesign and this will be taken into consideration to highlight the uniqueness of the Program. Further promotional materials	YSGS supports the program response. YSGS also encourages the program to consider additional in-province recruitment strategies as well.	Develop strategies for recruiting students outside Ontario	Associate Chair for Graduate Studies	2019/2020

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	will be developed to distribute to other institutions outside Ontario.				
14. Facilitate alternative communication paths for graduate students to freely voice any concerns they might have.	Agreement. The Program will continue to encourage students to use existing channels, but also consult with them to explore if they prefer alternative communication paths (full program response on page 8 of its response to the PRT report).	<p>YSGS supports the program response. YSGS also encourages the program to make students aware of other avenues to voice concerns (e.g., Associate Deans in FEAS) or for support (e.g., counselling services).</p> <p>YSGS also encourages the program to stress the role supervisory committees play in resolving student concerns related to their research. Ryerson University Policy 164 contains further information on the duties of supervisory committees.</p>	Consult with faculty, students and admin/technical staff to identify alternative paths	Associate Chair for Graduate Studies, Program Administrator	Fall 2019

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15. Enhance morale among MEng students.	The perception, if any in the Program, may come from the factors that MEng students don't receive any funding support from the Program, and mostly not from faculty members because the MEng program is primarily designed as course-based program. Some MEng students may also have had trouble when attempting to find a supervisor for Directed Studies and/or degree project. The Program's Recruitment and Admission Committee will analyze the MEng cohorts over the years and look into the balance between the number of MEng students accepted into the Program and the load required from faculty members to provide proper supervision.	YSGS supports the program response. YSGS, however, also encourages the program to investigate the possible sources of low morale amongst MEng (and other graduate) students. YSGS also encourages the program to ensure that expectations are clear for MEng students, particularly with respect to funding.	Consult with MEng students; develop preventive measures	Associate Chair for Graduate Studies	2019/2020
16. Encourage students and supervisors to have a meeting with Technical Support Staff early on in the research project.	Agreement. The Program will consult with both technical staff and students/supervisors to develop the best approach to encourage such meetings.	YSGS supports the program response.	Consult with staff, students and supervisors to develop approaches	Associate Chair for Graduate Studies	Fall 2019
17. Encourage faculty members to visit the labs periodically to get a feel and an	Agreement (full program response on page 8 – 9 of its response to the PRT report).	YSGS supports the program response.	Encourage faculty for such communications	Department Chair, Associate Chair for Graduate Studies	Ongoing

Recommendation	Program Response	YSGS Response	Proposed Action	Responsibility to Lead Follow Up	Timeline for Addressing Recommendation
update for space constraints.					
ADMINISTRATIVE AND FINANCIAL RECOMMENDATIONS					
18. Add net new space to the department.	Agreement. Submit annual requests from the Department to the FEAS Dean. This will occur on an ongoing basis (full program response on page 5 of its response to the PRT report).	YSGS supports the program response, but it notes that space allocations are outside of its purview. YSGS encourages the program to continue to work with the FEAS Dean's Office on issues related to space.	Continue identifying critical space need and submit requests to the FEAS Dean	Department Chair	Ongoing