

Program Progress Report

Institutional Quality Assurance Program (IQAP) Review

Electrical and Computer Engineering Graduate Programs

Date of Site Visit: April 14th – 16th, 2021

Progress Report Prepared by: Dr. I. Bruce (Assoc. Chair – Grad) & Dr. M. Bakr (Chair)

**Please outline below how recommendations from the initial program review have been addressed.
[Please fill in one table for each recommendation from the original Final Assessment Report]**

Recommendation: Consider whether there would be a benefit in normalizing the minimum grade admission requirement for all programs to B+.
Responsibility for Implementation: Assoc Chair
Anticipated Timeline for Completion: Sept 2022
Additional Notes/Commentary:
Progress (check one) <input type="checkbox"/> Completed <input type="checkbox"/> In Progress <input checked="" type="checkbox"/> Other (please explain)
Department's Comments: Originally the department had planned to change the admission requirement for the MEng in Electrical & Biomedical Engineering (currently a B minimum) to match the current minimum for the other programs (B+). However, now that the old undergraduate program that fed this MEng program has been superseded by the new IBEHS undergraduate program, we will now instead seek approval to have this MEng program cancelled. Note that there have not been any applications to this MEng program in the past two years, so there has not been any impact of not changing the minimum grade requirement.
Dean's Comments: As mentioned by the department, this program has not admitted students for quite some time. Its cancellation is supported by this office.
QAC Comments (to be filled in by Quality Assurance Committee): QAC reviewed this report and had no further comments or concerns.

<p>Recommendation: Monitor the impact of the tuition differential between international PhD and international MASc students.</p>
<p>Responsibility for Implementation: Chair, Assoc Chair, Administrator</p>
<p>Anticipated Timeline for Completion: Initial review before 18-month progress report; Analyze again in May 2024</p>
<p>Additional Notes/Commentary:</p>
<p>Progress (check one) <input type="checkbox"/> Completed <input checked="" type="checkbox"/> In Progress <input type="checkbox"/> Other (please explain)</p>
<p>Department's Comments: International student enrollments have continued to be affected greatly by COVID restrictions and study permit delays, so it is difficult to judge how the tuition differential might have impacted enrollments in the last 18 months.</p>
<p>Dean's Comments: This is not an academic matter covered by IQAP.</p>
<p>QAC Comments (to be filled in by Quality Assurance Committee): See above.</p>



<p>Recommendation: Communicate to faculty the departmental process to review and coordinate yearly graduate course offerings.</p>
<p>Responsibility for Implementation: Chair, Assoc Chair, Graduate Teaching Cluster leaders</p>
<p>Anticipated Timeline for Completion: Dec 2021</p>
<p>Additional Notes/Commentary:</p>
<p>Progress (check one) <input checked="" type="checkbox"/> Completed <input type="checkbox"/> In Progress <input type="checkbox"/> Other (please explain)</p>
<p>Department's Comments: As proposed, we have formed Graduate Teaching Clusters, starting in Fall 2021, to review and coordinate graduate course offerings. Chairs for the teaching clusters are assigned each year, and clusters are meeting at least once a year.</p>
<p>Dean's Comments: We are enthusiastic about this new approach and if the department finds this approach beneficial, we will be recommending some form of it for the smaller programs.</p>
<p>QAC Comments (to be filled in by Quality Assurance Committee): See above.</p>



Recommendation:

Enhance the curriculum so that there is a better balance between theoretical and applied content, between physics-based modelling and data-driven paradigms. In particular, there is a clear need for more machine learning courses taught from an application-centric viewpoint.

Responsibility for Implementation:

Chair, Assoc Chair, Graduate Teaching Cluster leaders

Anticipated Timeline for Completion:

Winter 2022

Additional Notes/Commentary:

Progress (check one)

☒ Completed

☐ In Progress

☐ Other (please explain)

Department's Comments:

As planned, Dr. Sorina Dumitrescu has developed a graduate course in Machine Learning that started being offered in Winter 2022, and the Graduate Clusters have discussed the development of further courses on data-driven approaches.

Dean's Comments:

Our newer faculty members are just beginning to tackle graduate teaching, so we expect a ramping-up in AI learning in ECE and across the Faculty over the next few years. We recognize the importance of students getting more exposure to AI techniques, if for no other reason than the fact that employers are looking for these skills now.

QAC Comments (to be filled in by Quality Assurance Committee):

See above.



<p>Recommendation: Consider implementing a minimum number of students necessary to hold a graduate class.</p>
<p>Responsibility for Implementation: Chair, Assoc Chair</p>
<p>Anticipated Timeline for Completion: Fall 2022</p>
<p>Additional Notes/Commentary:</p>
<p>Progress (check one)</p> <p><input type="checkbox"/> Completed</p> <p><input checked="" type="checkbox"/> In Progress</p> <p><input type="checkbox"/> Other (please explain)</p>
<p>Department's Comments:</p> <p>As planned, this topic was discussed at our department retreat in 2021, but no clear consensus was reached. This will be an item for the new department chair (who began in July 2022) to discuss with the graduate affairs committee, to see if a concrete proposal can be developed and brought to the department for a vote this academic year.</p>
<p>Dean's Comments:</p> <p>The Faculty has had a minimum for some time (5 students) for a course to be counted by faculty and chairs towards teaching obligations. However, this office is not prepared to interfere with departments on this matter, preventing courses being taught with fewer students since that will impact how supervisors get their research groups up to date with discipline-specific knowledge.</p>
<p>QAC Comments (to be filled in by Quality Assurance Committee):</p> <p>See above.</p>



<p>Recommendation:</p> <p>Provide more opportunities and reasons for MEng students to engage with course instructors and peers.</p>
<p>Responsibility for Implementation:</p> <p>Chair, Assoc Chair</p>
<p>Anticipated Timeline for Completion:</p> <p>Fall 2022</p>
<p>Additional Notes/Commentary:</p>
<p>Progress (check one)</p> <p><input type="checkbox"/> Completed</p> <p><input checked="" type="checkbox"/> In Progress</p> <p><input type="checkbox"/> Other (please explain)</p>
<p>Department's Comments:</p> <p>COVID restrictions have continued to hamper opportunities for student engagement outside of class in the past 18 months, but as proposed, we do plan to hold a series of events targeted at MEng students in the coming academic year. Additionally, the department has a much-expanded series of department seminars planned for the coming year, which will provide more opportunities for students to engage with their professors and peers.</p>
<p>Dean's Comments:</p> <p>Very supportive of MEng students feeling they are being recognized as a distinct and important group of learners in the department.</p>
<p>QAC Comments (to be filled in by Quality Assurance Committee):</p> <p>See above.</p>



<p>Recommendation: Facilitate the creation of a graduate student social club.</p>
<p>Responsibility for Implementation: Chair, Assoc Chair, Administrator</p>
<p>Anticipated Timeline for Completion: Winter 2022</p>
<p>Additional Notes/Commentary:</p>
<p>Progress (check one) <input checked="" type="checkbox"/> Completed <input type="checkbox"/> In Progress <input type="checkbox"/> Other (please explain)</p>
<p>Department's Comments: While looking into options for starting an ECE graduate student social club, the department received an offer from the Computing and Software department's graduate student social club, Life in Computing & Software (LICS), to expand their club's activities to include ECE grad students. The plan will be to eventually develop a shared-leadership model between CAS and ECE grad student for LiCS, if there is sufficient membership uptake from ECE students.</p>
<p>Dean's Comments: Activities that bring graduate students out of their research group into larger social settings is highly encouraged. We will be actively encouraging all departmental clubs to become affiliated with the Engineering Graduate Society (EGS), the Faculty's recognized graduate student association which is funded by and mentored by the Dean's leadership team.</p>
<p>QAC Comments (to be filled in by Quality Assurance Committee):</p> <p>See above.</p>



<p>Recommendation: Ensure that ECE faculty members have a clear understanding of departmental policies and best practises relating to junior faculty mentorship.</p>
<p>Responsibility for Implementation: Chair</p>
<p>Anticipated Timeline for Completion: Dec 2021</p>
<p>Additional Notes/Commentary:</p>
<p>Progress (check one) <input checked="" type="checkbox"/> Completed <input type="checkbox"/> In Progress <input type="checkbox"/> Other (please explain)</p>
<p>Department's Comments: As proposed, the Chair has continued the practice of annual (or more often) one-on-one meetings with faculty members on tenure track and the early stages of a tenured career. These meetings offer the opportunity to review the faculty member's research and teaching portfolios and to provide constructive, personalized advice on the balance of each. At our May 2021 department meeting and June 2021 department retreat, the Chair informed the department at large of this process to ensure that there is a clear understanding of the expectations amongst all junior faculty and their mentors.</p>
<p>Dean's Comments: With a new Chair overseeing the department, we expect much more structure on mentoring will come about in the next year or two. This is never really considered to be a completed task.</p>
<p>QAC Comments (to be filled in by Quality Assurance Committee):</p> <p>See above.</p>



<p>Recommendation: Provide enhanced course outlines that will allow students to get a better understanding about the content and learning outcomes of the courses.</p>
<p>Responsibility for Implementation: Assoc Chair, Administrator, Grad Admin</p>
<p>Anticipated Timeline for Completion: July 2021</p>
<p>Additional Notes/Commentary:</p>
<p>Progress (check one) <input checked="" type="checkbox"/> Completed <input type="checkbox"/> In Progress <input type="checkbox"/> Other (please explain)</p>
<p>Department's Comments: As of the 2021 Spring/Summer term, all ECE graduate courses now have comprehensive course outlines based on a common template, and course instructors are updating their outlines each time they teach their course.</p>
<p>Dean's Comments: Graduate Council enacted new requirements for course outlines in its course management policy as of June 2022. Following these requirements will enhance all course outlines.</p>
<p>QAC Comments (to be filled in by Quality Assurance Committee): See above.</p>



<p>Recommendation: Provide alternatives to 3MT presentations in ECE 790.</p>
<p>Responsibility for Implementation: Chair, Assoc Chair, MacPherson Institute</p>
<p>Anticipated Timeline for Completion: Winter 2022</p>
<p>Additional Notes/Commentary:</p>
<p>Progress (check one)</p> <p><input type="checkbox"/> Completed</p> <p><input checked="" type="checkbox"/> In Progress</p> <p><input type="checkbox"/> Other (please explain)</p>
<p>Department's Comments:</p> <p>COVID restrictions continued to impact the mode of delivery of this course in the 2021-22 academic year, so we will instead plan to do the course evaluation with the MacPherson institute in Winter 2023, when hopefully things will be more stable. We are also looking to reinstate the for-credit course ECE 702 Engineering Communication and Presentation, which was previously taught by an adjunct faculty member with extensive experience in communications and presentations in an industry context. If students take ECE 702 for credit, then we will waive the requirement of ECE 790.</p>
<p>Dean's Comments:</p> <p>Since clear oral communication is an essential requirement for all graduate degrees, the recommendation by the site reviewers was not seen as consistent with the PLOs and DDEs of the ECE programs. However, the departments re-instatement of ECE 702 is welcome as an alternative for the graduate students.</p>
<p>QAC Comments (to be filled in by Quality Assurance Committee):</p> <p>See above.</p>



<p>Recommendation: Consider offering more project-based graduate courses.</p>
<p>Responsibility for Implementation: Chair, Assoc Chair, Graduate Teaching Cluster leaders</p>
<p>Anticipated Timeline for Completion: Winter 2023</p>
<p>Additional Notes/Commentary:</p>
<p>Progress (check one)</p> <p><input type="checkbox"/> Completed</p> <p><input checked="" type="checkbox"/> In Progress</p> <p><input type="checkbox"/> Other (please explain)</p>
<p>Department's Comments: Graduate Teaching Clusters are continuing to discuss course offerings in their area and are being encouraged to identify opportunities for project-based courses.</p>
<p>Dean's Comments: This recommendation will be monitored with care and concern. Many courses in ECE already run far beyond the end of term, and the department has shown considerable difficulties in providing oversight on collecting grades in a timely manner. We will work with the department to improve how grades are collected at the end of term before considering an expansion of course project offerings.</p>
<p>QAC Comments (to be filled in by Quality Assurance Committee):</p> <p>See above.</p>



<p>Recommendation: Consider encouraging teamwork in graduate courses (via projects).</p>
<p>Responsibility for Implementation: Chair, Assoc Chair, Graduate Teaching Cluster leaders</p>
<p>Anticipated Timeline for Completion: Fall 2022</p>
<p>Additional Notes/Commentary:</p>
<p>Progress (check one) <input checked="" type="checkbox"/> Completed <input type="checkbox"/> In Progress <input type="checkbox"/> Other (please explain)</p>
<p>Department's Comments: Possibilities for incorporating teamwork in graduate course (via projects) have been discussed at the Graduate Teaching Clusters, and interested instructors will be put in contact with the MacPherson Institute for assistance in developing appropriate assessment approaches for group work.</p>
<p>Dean's Comments: The Dean's office will also be encouraging SAS and EIO consultation.</p>
<p>QAC Comments (to be filled in by Quality Assurance Committee):</p> <p>See above.</p>



<p>Recommendation:</p> <p>Consider offering graduate courses focused on recent academic papers, that would reflect the state of the art in their field.</p>
<p>Responsibility for Implementation:</p> <p>Chair, Assoc Chair</p>
<p>Anticipated Timeline for Completion:</p> <p>Fall 2021</p>
<p>Additional Notes/Commentary:</p>
<p>Progress (check one)</p> <p><input type="checkbox"/> Completed</p> <p><input checked="" type="checkbox"/> In Progress</p> <p><input type="checkbox"/> Other (please explain)</p>
<p>Department's Comments:</p> <p>As planned, this topic was discussed at the May 2021 department meeting and the June 2021 department retreat. While a very small number of faculty members were very supportive of the idea of developing an independent-study graduate course, there was not widespread enthusiasm. However, the discussion of this issue may have been hampered by the video-call nature of these virtual meetings. So, we will return to discussion of this topic in the coming academic year, where we anticipate returning to in-person department meetings.</p>
<p>Dean's Comments:</p> <p>This seems like a good suggestion for a course but not an appropriate comment in an IQAP review supposedly focused on program improvement.</p>
<p>QAC Comments (to be filled in by Quality Assurance Committee):</p> <p>See above.</p>



<p>Recommendation: Consider integrating student feedback into a loop for course improvement.</p>
<p>Responsibility for Implementation: Chair, Assoc Chair, Graduate Teaching Cluster leaders</p>
<p>Anticipated Timeline for Completion: Summer 2022</p>
<p>Additional Notes/Commentary:</p>
<p>Progress (check one) <input checked="" type="checkbox"/> Completed <input type="checkbox"/> In Progress <input type="checkbox"/> Other (please explain)</p>
<p>Department's Comments: As proposed, discussion of student feedback with the goal of identifying targets for course improvements is now a part of each Graduate Teaching Cluster meeting.</p>
<p>Dean's Comments: With changes to how the university will collect student feedback being rolled out over the next year, we expect improvements in the information being received by instructors on how students perceive a course. However, we must be concerned about the mounting evidence that this feedback needs to be filtered, with EDI considerations highlighted, and so the 'loop' being recommended by site visitors will need oversight by other units on our campus.</p>
<p>QAC Comments (to be filled in by Quality Assurance Committee):</p> <p>See above.</p>



Recommendation:

Consider a succession plan for the Graduate Administrative Assistant. While her dedication and enthusiasm are impressive, it might be hard to find a new graduate assistant with the willingness to take on her heavy workload upon her retirement. It might be a good idea to plan for hiring one Graduate Administrative Assistant for MASc and PhD Programs, and a second one for the MEng Program.

Responsibility for Implementation:

Chair, Administrator

Anticipated Timeline for Completion:

Fall 2021

Additional Notes/Commentary:

Progress (check one)

☒ Completed

☐ In Progress

☐ Other (please explain)

Department's Comments:

The Dean has been attentive to our administrative staffing needs, and additional staff resources are being deployed to assist our graduate admin assistant.

Dean's Comments:

This is a recommendation outside the bounds of the IQAP review. Proper staffing is relevant to IQAP but the recommendation has veered from the academic need, since the resources are admitted by all to being in place, into an HR matter.

QAC Comments (to be filled in by Quality Assurance Committee):

See above.



<p>Recommendation:</p> <p>The Department could provide more centralized computing.</p>
<p>Responsibility for Implementation:</p> <p>Chair, Assoc Chair, IT staff</p>
<p>Anticipated Timeline for Completion:</p> <p>Winter 2022</p>
<p>Additional Notes/Commentary:</p>
<p>Progress (check one)</p> <p><input checked="" type="checkbox"/> Completed</p> <p><input type="checkbox"/> In Progress</p> <p><input type="checkbox"/> Other (please explain)</p>
<p>Department's Comments:</p> <p>As proposed, our IT staff is continuing to monitor the computing needs of our graduate students, and HPC resources at McMaster and at Compute Canada are being advertised to the students.</p>
<p>Dean's Comments:</p> <p>The Faculty assists all of our departments with their computational needs based on continuous consultation of each department's leadership team and IT personnel with the Faculty's IT manager and our DOFA.</p>
<p>QAC Comments (to be filled in by Quality Assurance Committee):</p> <p>See above.</p>



Recommendation:

It is not recommended to achieve an enhanced use of physical resources by combining on-line and in-person graduate student activities after the pandemic. This might lead to a decrease in the community spirit of the graduate students belonging to the same lab. In-person activities should be encouraged as much as possible after the pandemic.

Responsibility for Implementation:

Chair, Assoc Chair

Anticipated Timeline for Completion:

Fall 2022

Additional Notes/Commentary:

Progress (check one)

☒ Completed

☐ In Progress

☐ Other (please explain)

Department's Comments:

As proposed by the department, we are looking to maximize the opportunities for returning to in-person activities where possible. We also agree with the Dean's comment that at the same time we should continue making use of knowledge and experience we have gained in regard to hybrid and blended learning where appropriate.

Dean's Comments:

The recommendation is understandably negative since the review was carried out during the pandemic but it seems to lack foresight into how the Faculty will build upon its investments and new resources related to virtual learning. The Faculty is strongly supportive of our Provost's initiatives to get students back into classes and active on campus but we see hybrid and blended learning activities can now be delivered with professional quality and keen awareness of the pros and cons involved.

QAC Comments (to be filled in by Quality Assurance Committee):

See above.