



FINAL ASSESSMENT REPORT

Executive Summary

March 2017

**Master of Applied Science and Master of Engineering in Automotive Engineering
Program Review**

Dean: Dr. Hossam Kishawy (Interim Dean)

Dean of Graduate Studies: Dr. Langis Roy

Under UOIT's Quality Assurance Framework, all degree programs are subject to a comprehensive review every eight years to ensure that they continue to meet provincial quality assurance requirements and to support their ongoing rigour and coherence.

On the completion of the program review, the self-study brief together with the reviewers' report and the assessment team's response are reviewed by the appropriate standing committee of Academic Council, and are subsequently reported to Academic Council, the Board of Governors and the Quality Council.

In 2015-2016 a program review was scheduled for the Master of Applied Science and Master of Engineering in Automotive Engineering programs. This is the first program review for this program and the internal assessment team is to be commended for undertaking this assignment in addition to an already challenging workload and within very tight deadlines. The following pages provide a summary of the outcomes and action plans resulting from the review, identifying the strengths of the program as well as the opportunities for program improvement and enhancement. A report from the program outlining the progress that has been made implementing the recommendations will also be put forward in eighteen months' time.

External Reviewers: Zengtao Chen (University of Alberta), Saeid Habibi (McMaster University), Ravi Ravindran (Ryerson University)

Site Visit: June 7-8, 2016

The graduate programs in FEAS were created to meet the UOIT's strategic research goals focusing on technology and engineering, and to meet the forecasted demands for increased graduates in Engineering in Ontario. The Greater Toronto Area (GTA) has a large population and a great scope for Automotive Engineering graduate programs. The location of UOIT makes it an excellent choice for bringing increased engineering graduates to the eastern half of the GTA and neighboring cities, towns, and municipalities.

UOIT is ideal for taking advantage of a number of major industrial companies in the eastern half of the GTA whose areas are very relevant to the graduate programs of Automotive Engineering. They include General Motors of Canada, Toyota, Honda, Magna, and Ontario Power Generation. Automotive

graduates are often employed by various engineering consulting firms, automotive related industries and in a wide range of manufacturing, processing and transportation industries.

Significant Strengths of the Program

- The program is market-oriented, career-focused and is contributing to Canada's automotive sector in a global context in terms of research and training.
- Professors are highly motivated, with some of them having international reputations; they bring real world experience to the research laboratory and create opportunities for the students.
- Learning outcomes are well defined and align with the program expectation and student assessment is consistent with Canadian Standards.
- The program has been instrumental in developing world class facilities in support of its automotive program that notably includes the Automotive Centre of Excellence (ACE).

Opportunities for Program Improvement and Enhancement

- Current funding to graduate students is quite low compared to other universities.
- There is opportunity to improve the curriculum of the program by having the department retain and reclassify the exiting core courses as introductory graduate level courses.
- New advanced automotive graduate courses could be introduced in emerging areas of interest to the automotive sector; potentially including autonomous vehicles, electrified powertrain, artificial intelligence, control, lightweight materials, and software.
- M.Eng students that complete their program without completing a project could benefit from increased experiential training and exposure to the automotive industry.

The External Review

Dr. Zengtao Chen, Dr. Saeid Habibi and Dr. Ravi Ravindran visited the University of Ontario Institute of Technology (UOIT) North Oshawa location on June 7-8, 2017. Over the two days, the reviewers met with FEAS faculty, students, Graduate Studies administration and staff. The reviewers had the opportunity to ask these individuals questions about the program and their experiences. The reviewers also had the chance to tour Automotive Centre of Excellence (ACE) and other research facilities, including the Simulator Lab.

Summary of Reviewer Recommendations and Faculty Responses

Recommendation 1

Level of funding for graduate students is insufficient and inadequate.

Response:

Improvements to the level of funding for graduate students has started to be implemented. For instance, starting in 2016-2017, the Dean's Graduate Scholarship has been extended from 2 years to 4 years at the PhD level. In addition, new FEAS scholarships and OGS matching scholarships have been introduced to increase the financial support available for graduate students. This initiative will need to be continuously built up.

Recommendation 2

Lack of consistency in funding graduate students need to be addressed.

Response:

This has been partially addressed in our response to Recommendation (1). It will be further examined by the School of Graduate Studies.

Recommendation 3

The current fee structure is inappropriate given the requirement for full fee payment passed the normal program of study duration.

Response:

Students requiring additional terms beyond the normal program length are expected to pay regular tuition, as in most Ontario universities. However, students in this situation may be eligible for part-time status and pay reduced tuition.

Recommendation 4

The quality of the curriculum can be enhanced through introduction of advanced courses, and hiring new faculty with relevant expertise.

Response:

New faculty hiring is in progress. As a result, it is expected that a number of new graduate courses can be introduced. The department is also planning to revisit the graduate course offerings to improve the students learning experience. In addition, under certain conditions students may take outside courses via the Ontario Visiting Graduate Student (OVGS) program.

Recommendation 5

Appointment of a dedicated Graduate Program Assistant for the Department of AMME is recommended.

Response:

The FEAS dean will look into this further. For the departmental structure, it will be good to have dedicated graduate program assistant to support graduate related activities of the department. As the department's graduate programs grow, it is expected that sufficient resources will be available for such a position.

Recommendation 6

The Department should constantly review its industrial engagement and enhance the student experience.

Response:

There should be a discussion between the department, the FEAS dean and the Graduate dean's office on having a dedicated person promoting this. In addition, a completely revamped GradProSkills program is currently being led by Graduate Studies with the goal of enhancing graduate student experience generally and, in particular, fostering greater industrial engagement.

Recommendation 7

Computing resources including IT services for students are inadequate.

Response:

Feedback can be collected from the faculty members about the common software packages that will help the greatest number of graduate students. Central IT support is indeed limited, and in the context of the 2017-2018 integrated academic plan, a university-wide solution is presently being pursued.

Recommendation 8

There are opportunities in better accommodating the voice of students and enhancing student involvement and engagement in the management of the graduate program.

Response:

There are students representatives on the Faculty Council, Academic Council, Graduate Studies committee and on the FEAS graduate committees. Creating a dedicated space for graduate activities or a common lunchroom for faculty and graduate students can also be helpful in this regard, as this is successfully practiced at other schools.

Recommendation 9

Machine shop should be made more accessible to graduate students.

Response:

Such a facility exists (shared with ACE) and FEAS technical support staff is available to help students. Having something like this will also be helpful to the junior/new faculty hires in starting up their research program.

Plan of Action

The table below presents a timeline of the actions planned to address the recommendations from the external report.

Proposed Action	Timeline	Person/Area Responsible
Increase IT support as per 2017-2018 integrated academic plan	Ongoing	FEAS, IT Services, OGS, Provost
Additional course offerings	Immediate	FEAS
Enhance industrial engagement	In place for 2017-2018	FEAS, OGS
Explore incentives for program growth	Fall 2017	FEAS, OGS

Due Date for 18-Month Follow-up on Plan of Action: March 2018

Date of Next Cyclical Review: 2023-2024