



## **FINAL ASSESSMENT REPORT**

**November 11, 2019**

### **Master of Engineering Management and Graduate Diploma in Engineering Management Program Review**

**Dean: Tarlochan Sidhu**

Under Ontario Tech University'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 academic years 2017 - 2019 a program review was scheduled for Master of Engineering Management and Graduate Diploma in Engineering Management. 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 a very tight timeline. 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 in implementing the recommendations will also be put forward in eighteen months' time.

**External Reviewers:** Dr. Ahmad Azab – University of Windsor, Dr. Soho Eid Moussa – Guelph University, and Dr. Ozgur Turetken – Ryerson University

**Site Visit:** July 8<sup>th</sup> and 9<sup>th</sup>, 2019

#### **Program Overview**

The Master of Engineering Management (MEngM) and Graduate Diploma (GDip) in Engineering Management allow students to study the area of planning, allocating resources, and directing and controlling activities which have an engineering or technological component. Students learn to apply engineering principles for organizing and directing personnel and resources in technical projects.

The Master of Engineering Management (MEngM) program provides courses in the areas of engineering project management, production planning and operations management, energy systems management, mathematical modeling and optimization as they pertain to complex engineering systems, quality control, health and safety, and applied risk analysis.

The Graduate Diploma in Engineering Management provides students with an alternative form of professional development when they do not wish to do a full master's degree but want to take graduate-level courses. Courses within the graduate diploma program are the same as those taken by the master's students in the MEngM program and hence are taught by the same faculty members. For students, the GDip program can be a pathway to the MEngM program.

### **Significant Strengths of the Program**

- The Engineering Management program is unique to the Greater Toronto area and has tremendous potential to be a flagship master's program at Ontario Tech University.
- Flexible program structure providing convenient course scheduling for working professionals.
- Demand for the Engineering Management program is very high, with the calibre of students exceeding the minimum application criteria.
- Great cultural diversity attributed to the program attracting a large number of international students and applicants.
- Intimate learning environment due to program and campus size.
- Dedicated and supportive Faculty members and graduate programs assistant.
- State-of-the-art facilities.

### **Opportunities for Program Improvement and Enhancement**

- The curriculum is missing a number of key core courses in the area of engineering managements, including: deterministic and stochastic operations research, supply chain management, information systems, work measurements, and ergonomics.
- Examination of the number of faculty members required to support the program.
- Revise the curriculum to eliminate the business courses no longer offered.

### **The External Review**

The site visit took place on July 8 and 9, 2019. Dr. Ahmed Azab, Dr. Soha Eid Moussa, and Dr. Ozgur Turetken met with members of the Faculty as well as key stakeholders at the University, including Dr. Lori Livingston – Provost, Dr. Tarlochan Sidhu – Dean of the Faculty of Engineering and Applied Science and Dr. Langis Roy – Dean of the School of Graduate and Postdoctoral Studies and members of the internal assessment team and a number of faculty, staff, and students.

The Faculty was grateful for the thoughtful and thorough review provided. The external reviewers recognized the high quality of the faculty, the rigorousness of the program, and the innovation in the content and delivery of the programs.

The reviewers identified three recommendations, some of which have multiple components. The Faculty values the recommendations and have been very thoughtful in their responses.

### **Summary of Reviewer Recommendations and Faculty Responses**

#### ***Recommendation 1***

*At least two full-time faculty members with an engineering management/industrial engineering background be hired to support the program.*

#### ***Response***

The faculty agrees with this recommendation. The program is under-resourced, and currently there are

no faculty members with the proper academic background in engineering management to deliver and guide the suggested program modifications.

***Recommendation 2***

*The curriculum and course structures be revisited to include key courses in engineering management.*

***Response***

The recommended change to the curriculum is innovative and would improve the quality of the program and better prepare students for jobs in Engineering Management. This change would also require significant resources (two full-time faculty members and time to follow the University process) to support the development and delivery of the new courses.

Further discussion will take place with regards to course delivery (hybrid mode or fully online) once the new courses are incorporated into the program.

***Recommendation 3***

*The student cohort be between 20 to 30 students.*

***Response***

Once the program is fully resourced, modified, and approved, we will admit 20 students and eventually grow to 30 students in the program.

## Plan of Action

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

Recommendation	Proposed Follow-Up	Responsibility for Leading Follow Up*	Timeline
<i>Examine the number of faculty needed to support the program</i>	Present External Reviewer report and response at Faculty Retreat	Dean of FEAS / Dean of SGPS	August 2019
	Present report and response at GSC and Academic Council	Dean of SGPS	Fall 2019
	Submit request for approval for faculty hires	Dean of FEAS / Provost	Fall 2019
	If approved, start hiring process, interviewing, making recommendations	Dean of FEAS	Fall 2019/Winter 2020
	Consultation with other Faculties	Dean of FEAS / GPD	Winter 2020
	Develop a business model for cost/revenue sharing and sustainability	Dean of FEAS / Dean of SGPS /Provost	Winter 2020
<i>The curriculum and course structures be revisited to include key courses in engineering management.</i>	Complete documentation for suggested program changes	GPD in consultation with Dean's office	Winter 2020
	Fill out course templates for suggested new courses	GPD in consultation with Dean's office and faculty members	Winter 2020
	Coordinate with FBIT for the offering of required Business courses	Dean of FEAS / Dean of FBIT /GPD	Winter 2020
	Present proposed program changes, including removal of GDip, to FEAS Faculty Council	Dean of FEAS	Winter 2020/Summer 2020

	Present proposed changes to GSC & Academic Council	Dean of SGPS	Summer 2020 / Fall 2020
	Calendar update for the MEngM program	GPD	Summer 2020 / Fall 2020
<i>Revisit learning outcomes</i>	Review graduate attributes, assessment methods to evaluate the learning outcomes, etc.	GPD in consultation with Dean's office	Fall 2020
<i>The student cohort be between 20 to 30 students.</i>	Admission for Winter 2021	GPD / Dean of SGPS	Fall 2020

\*The Dean of the Faculty, in consultation with the Program Review Chair shall be responsible for monitoring the Implementation Plan. The details of progress made will be presented to Academic Council and the Board of Governors and filed in the Office of the Provost and Vice-President (Academic).

**Due Date for 18-Month Follow-up on Plan of Action:** March 2021

**Date of Next Cyclical Review:** 2025-2027