Executive Summary

Graduate Program in Mechanical and Aerospace Engineering (Joint)
Cyclical review year 2012-2013

Approved by the
Ottawa-Carleton Committee on Graduate Quality Assurance (OCCGQA) (March 23, 2015)
Carleton University Committee on Quality Assurance (CUCQA) (XXX 2015)
University of Ottawa Graduate Program Evaluation Committee (GPEC) (March 25, 2015)

Name of Program Reviewed	Mechanical and Aerospace Engineering (Joint)
Degrees	At the University of Ottawa: • Master of Engineering in Advanced Materials and Manufacturing / Maîtrise en ingénierie Matériaux avancés et fabrication • Master of Engineering in Mechanical Engineering / Maîtrise en ingénierie Génie mécanique • Master of Applied Science in Advanced Materials and Manufacturing / Maîtrise ès sciences appliquées Matériaux avancés et fabrication • Master of Applied Science in Mechanical Engineering / Maîtrise ès sciences appliquées Génie mécanique • Doctor of Philosophy in Advanced Materials and Manufacturing / Doctorat en philosophie Matériaux avancés et fabrication • Doctor of Philosophy in Mechanical Engineering / Doctorat en philosophie Génie mécanique At Carleton University: • MASc Aerospace Engineering • MASc Materials Engineering • MASc Mechanical Engineering • MEng Aerospace Engineering • MEng Materials Engineering • MEng Mechanical Engineering • PhD Aerospace Engineering • PhD Mechanical Engineering
Responsible Academic Units	Ottawa-Carleton Institute of Mechanical and Aerospace Engineering (OCIMAE), established in 1984
Fields	There are six fields in the program: 1) Thermal and Fluid Engineering / Génie Fluide et Thermique 2) Solid Mechanics and Design/Mécanique et Conception des Solides 3) Materials and Manufacturing / Matériaux avancés et Fabrication

	4) Controls and Robotics / Automatique et robotique 5) Biomedical Engineering / Génie biomedical 6) Aeronautical and Space Engineering / Génie Spatial et Aéronautique
Final Evaluation	At the University of Ottawa: • Good quality with report for the Master of Engineering in Advanced Materials and Manufacturing / Maîtrise en ingénierie Matériaux avancés et fabrication • Good quality with report for the Master of Engineering in Mechanical Engineering / Maîtrise en ingénierie Génie mécanique • Good quality with report for the Master of Applied Science in Advanced Materials and Manufacturing / Maîtrise ès sciences appliquées Matériaux avancés et fabrication • Good quality with report for the Master of Applied Science in Mechanical Engineering / Maîtrise ès sciences appliquées Génie mécanique • Good quality with report for the Doctor of Philosophy in Advanced Materials and Manufacturing / Doctorat en philosophie Matériaux avancés et fabrication • Good quality with report for the Doctor of Philosophy in Mechanical Engineering / Doctorat en philosophie Génie mécanique At Carleton University: • Good quality with report for the MASc Aerospace Engineering • Good quality with report for the MASc Materials Engineering • Good quality with report for the MASc Mechanical Engineering • Good quality with report for the MEng Aerospace Engineering • Good quality with report for the MEng Materials Engineering • Good quality with report for the MEng Mechanical Engineering • Good quality with report for the PhD Aerospace Engineering • Good quality with report for the PhD Mechanical Engineering
Program Start Date	OCIMAE established 1983/1984.

Significant Strengths of the Program

The graduate programs in mechanical and aerospace engineering offered by the OCIMAE are judged by the OCCGQA Evaluation Committee as being of “good quality with report”. Overall, the programs are assessed to be of high quality. Furthermore, they are considered to be delivered with “healthy cooperation and care for the continuing vitality of the program” at both the University of Ottawa and Carleton University. A state-of-the art curriculum is delivered by committed and highly qualified faculty members. Joint and collaborative activities are numerous and are valued by all parties.

The physical resources (e.g. research facilities, library and computing resources), are well-established and complementary between the two institutions. Moreover, the program benefits from close proximity to relevant government research labs in the National Capital Region.

Areas for Improvement and Enhancement

Several possibilities for enhancing the program were identified.

While the number of graduate courses offered exceeds the minimum requirement for program delivery, students would be better served by an increased offering, which could potentially be achieved by drawing on a wider pool of sessional or adjunct professors from government research labs in the National Capital Region. Additionally, efforts should be made to balance course offerings in proportion to relative student enrolment at the two institutions.

The MEng students do not have a well-defined sense of community, and the professional degree goals of MEng students are not well-supported by the research-oriented courses designed for the MASc and PhD degrees. The development of a set of core MEng foundational courses could help to address both these challenges.

Time-to-completion is somewhat longer than average for the research degrees (MASc and PhD) and should continue to be monitored.

Recommendations

It is recommended that the OCIMAE:

1. Seek to increase the number of graduate courses offered to better meet student expectations.
2. Redefine the objectives of the MEng degree and align the needs of MEng students with the methods required to achieve their professional degree goals, e.g., by developing a set of core MEng foundational courses.
3. Continue monitoring time-to-completion for the MASc and PhD degrees.
4. Assist MEng students develop a stronger sense of community.
5. Encourage students and faculty members to continue engaging in a range of joint activities, and seek creative ways to facilitate this (e.g. using teleconferencing technology to broadcast seminars, more systematic reporting and celebration of joint successes).
6. Monitor and strive to maintain balance between course enrolment at uOttawa and Carleton.
7. Regularly follow up on student exit surveys to monitor student experience and program quality.

Implementation Plan

Calendar and Deadlines

A report addressing recommendations 1 and 2 should be submitted by June 30, 2016. The remaining recommendations should be addressed before the next cyclical review, which will take place no later than 2020-2021.

Authorities

The Director of the OCIMAE will be responsible for implementing these recommendations, with the assistance of the Associate Director of the OCIMAE who, together with the deans of Engineering, will oversee the application and implementation of the recommendations in their respective institutions.