

Final Assessment Report
Submitted by SUPR-G to SCAPA

Program:	Mechanical and Materials Engineering	
Degrees Offered:	MEng, MEng, PhD	
Approved Fields:	<ol style="list-style-type: none"> 1. Mechanical Engineering 2. Thermofluids 3. Materials and Solid Mechanics 4. Automation Technologies and Systems 5. HVAC (Heating, Ventilating and Air Conditioning) Systems (MEng Program only) 6. Composite Materials (MEng Program only) 7. Engineering in Medicine (MEng Program only) 8. Micro and Nano Systems (New) 	
External Consultants:	Christine Wu , Professor and NSERC Industrial Research Chair, Department of Mechanical and Manufacturing Engineering, University of Manitoba	Sanjeev Chandra , Professor, Department of Mechanical & Industrial Engineering, University of Toronto
Internal Reviewers:	Jim Dickey , Assistant Professor School of Kinesiology University of Western Ontario	Ivan Lee , PhD Candidate, Department of Geography
Date of Site Visit:	March 18 – 19, 2014	
Evaluation:	<i>Good Quality with Report June 2015</i>	
Approved by:	<i>SUPR-G on June 2, 2014</i> <i>SCAPA on September 10, 2014</i>	

Executive Summary

Western's Mechanical and Materials Engineering graduate program is a vibrant and dynamic program that has shown a large amount of growth since the last review in 2007, and expansion of the MEng program in 2011. The review was conducted on March 18th and 19th 2014 and was headed by externals, Dr Sanjeev Chandra (Associate Chair of Graduate Studies, Mechanical and Industrial Engineering, University of Toronto) and Dr Christine Wu (Professor, Mechanical and Manufacturing Engineering, University of Manitoba). The review was collegial, comprehensive and well organized. The externals were impressed by the overall quality of the faculty, the professional and administrative staff, the state of the research (particularly the Micro-Nano-Bio Systems and Nanomaterials Research Laboratories) and teaching laboratories (particularly the mechatronics and wind tunnel laboratories), and the innovative components of the program (including CSTAR, the WINDEEE wind tunnel and the Fraunhofer Project Centre).

The externals prepared a concise but constructive report that outlined a handful of specific recommendations including re-examination of the level of funding for graduate students, involving staff and students in program decisions and better integration of learning outcomes within the program and courses. The externals concluded that there was sufficient faculty strength and expertise to support the current fields and to support the proposed new field of research in Micro and Nano Systems. In terms of the curriculum and training aspects of the program, the externals identified student concerns about the program seminar professional ethics and the desire for more assistance with career preparation. Dr Siddiqui prepared a comprehensive and detailed response to the externals' report and outlined their plans of immediate investigation and implementation of changes. The Engineering Dean, Dr Andy Hrymak has acknowledged the issues raised in by the external reviewers and has suggested that SGPS should review the issue of whether teaching assistant pay should be considered within or above the

funding package. He has also presented a contrasting view regarding engagement of staff and graduate students in department decision making; he has suggested that demonstration of changes in practice to address issues, of which Dr Siddiqui presented several examples, are more important than engagement of staff and graduate students in department decision making. He also raises an important point about learning outcomes in the graduate program; he suggests that it may be possible for individual students to assemble their program based on a selection of courses that do not meet the overall graduate program learning objectives.

The recommendations made and described below have been acknowledged in the program's response to the external assessors' report. In fact, the program has described a number of initiatives that have already been put into place (such as additional graduate student representation on the Department Council and the formation of a new committee that will meet on a monthly basis to discuss concerns of the administrative and technical staff). They also describe that they are planning a departmental retreat for the summer of 2014, in collaboration with the Teaching Support Centre and SGPS, to specifically focus on learning objectives.

Significant Strengths of Program:

- Clear departmental administrative structure with 1) Department Chair, 2) Associate Chair, Graduate Research Programs, and 3) Associate Chair, Graduate Professional Programs.
- Clear departmental staff structure with Chris Seres (Administrative Assistant), Joanna Blom (Graduate Coordinator), and assistance from Claire Naudi (Undergraduate Coordinator).
- Responsiveness to needs, such as expanding the associate chair (research and professional)
- Strong technical and research support for the graduate students (such as the machine shop)
- Excellent research and professional training programs for the graduate students
- Unique opportunities for faculty graduate research in nationally and internationally renown laboratories (such as CSTAR, the WINDEEE wind tunnel and the Fraunhofer Project Centre).

Opportunities for improvement & Enhancement:

- Although the departmental administrative staff structure appears clear, it appears that the roles of the individuals is not totally clear to the students.
- The program must more thoroughly examine the program's learning outcomes with particular attention to how the program supports and evaluates the outcomes.
- The department seminar series should be specifically considered within the context of program learning outcomes.

Recommendations for implementation:	Responsibility
Level of funding for graduate students	Graduate program with guidance from SGPS
Input of staff and graduate students in Departmental Affairs	Graduate program
Thorough address of learning outcomes at the program and course levels	Graduate program
Review the graduate seminar with particular attention to identify and address specific learning outcomes	Graduate program
Guidance in career preparation and professional ethics	Graduate program
Survey graduates, particularly from the MEng program, regarding their views on the professional courses	Graduate program