

Final Assessment Report
Submitted by SUPR-U to SCAPA

Undergraduate Program:	Mechanical and Materials Engineering
New or Cyclical Program Review (please indicate)	Cyclical
Degree(s) Offered:	Bachelor of Engineering Science, Mechanical Engineering
Date of Site Visit:	November 21 2012
Evaluation	Good quality

Summary:

Dr. Saeid Habibi of McMaster University and Dr. Jean Zu of University of Toronto were generally impressed with the Mechanical and Material Engineering program. The MME program has recently introduced a number of significant changes (e.g., introduced a research methods course, modernized curriculum, increased focus on industry-sponsored projects, introduction of more experiential opportunities). It is fully compliant with the requirements of the Canadian Engineering Accreditation Board and is similar to other programs offered across the country.

The program's unique features include: a summer program at Fanshawe College where students can get a machinist certificate, concurrent degrees with Ivey, Law and Medicine, and excellent exchange opportunities. Exit surveys, teacher ratings and attrition rates all indicate that the program is of high quality. The student-faculty ratio is lower than that of comparable programs though the department is advised to monitor whether the newly created program, Mechatronics Systems Engineering, will impact on this ratio in the future. The reviewers found the library resources to be exceptionally good and the IT infrastructure and training to be good. (They did, however, note the importance of renewing aging computing resources.) The faculty members in general were found to be committed to both teaching and to research, the support staff excellent and the technical staff very committed and dedicated despite being overloaded. Technical staff, with their view from the "ground" expressed a desire to be more involved in decision-making regarding labs. Planning for courses and lab work was complicated by the fact that TA assignments were only made a week before classes ended. The reviewers recommended that the process of TA assignments be made earlier and that the technical staff be included in conversations about the labs.

Three minor shortcomings were identified. First, not all students received the same experience in their fourth-year capstone course. The department is currently examining ways to improve this. On a practical level, the ability to staff this course is compromised by the elimination of a technical staff position in 2009 and it may be time to revisit the staffing complement. Second, a few years ago, the equipment in the MME machine shop was removed and put in a general machine shop. Consequently access for MME students is no longer guaranteed. As the capstone course becomes more important, the reviewers felt the department should have its own machine shop and that the technician who retired in 2009 be replaced. Because the labs have been modernized and have complex equipment, it is essential that there be appropriate technical support. The current technical support staff has no expertise in material science which puts strain on faculty in this area, and as outlined in the previous point, compromises the ability to offer an outstanding experience for all students in the capstone course. Finally, the reviewers were concerned that students had access to machines without supervision. In response to this concern, the Chair solicited the advice of the Faculty Safety Officer and was told that the current practice is "consistent with safety requirements". Given the importance of student safety, this difference of opinion between the reviewers and the Safety officer should be discussed more fully. Clearly resolving these

issues with respect to staffing, safety and an MME machine shop will require discussions with the Dean and Chair before any action plan can be implemented.

Recommendation	Responsibility
Ensure that all students in the fourth-year capstone course get the same level of high-quality experiential learning	Department
Insure supervision of students in machine shop at all times	Faculty/department
Provide support for machine shop activities required by the department	Faculty/department
Review technical staff compliment for suitability for current undergraduate program needs	Faculty/department
Allocate TAs for courses earlier.	Faculty
Replace aging computers	Faculty
Increase hours of availability of help desk	Faculty

Solicit advice from technical staff about the aspects of students' labs.