



**Internal Academic Review 2007-2008**  
**Department of Mechanical and Materials Engineering**  
**Internal Academic Review Committee Report to Senate**

The Internal Academic Review (IAR) of the Department of Mechanical and Materials Engineering (MME) is now complete. The Internal Academic Review Committee (IARC) has taken into consideration all of the IAR submissions related to the Department and respectfully submits the following report. The IARC Report to Senate is intended to supplement the findings of the attached Review Team Report and to provide a mechanism for the Head of the Department and the Dean of the Faculty of Applied Science to report jointly on the progress in addressing the Review Team recommendations.

**Summary of the Internal Academic Review of the Department of Mechanical and Materials Engineering (MME)**

The Internal Academic Review Committee (IARC) acknowledges the Department of MME's positive reputation and commends the Department for its excellence in teaching, research and service to industry.

The IARC acknowledges the Department's achievements in offering a stimulating academic program in both undergraduate and graduate studies. The IARC agrees with the reviewers' recommendation that the Department formulate a strategic plan to determine academic priorities for the future. The IARC supports the idea of the Department engaging in an analysis of the relationships between areas of traditional discipline strength in manufacturing design and systems and other areas of innovation within the Department to identify synergies that can be integrated into the curriculum.

The strength of the undergraduate program in the Department of MME is noted in the reviewers' reports. The IARC joins reviewers in their recommendation that the Department continue to enhance the quality of existing undergraduate programs and avoid expanding programs at this time. The IARC also agrees with the recommendation that the Department of MME continue to provide graduate students with a stimulating learning environment, develop a strategy to increase PhD enrolment, and introduce mechanisms for student retention that will contribute to the overall vitality of the graduate program.

The IARC noted the reviewers' recommendation that the Department remain aware of the declining proportion of female students and seek ways to foster a greater diversity in student enrolment in the undergraduate program.

The IARC agrees with the reviewers' recognition that the Department of Mechanical and Materials Engineering is strong in the fundamentals of teaching and research. The IARC

supports the recommendation that the Department use the development of a strategic plan to explore new ways to address the challenges related to space and sustainability, and seek opportunities to work with the Faculty of Applied Science to address future challenges and opportunities.

growing demand from students for studies in the field of biomechanical engineering. It capitalizes on an area of strength within the department. It is also consistent with our diversity goal to promote programs that are at

## Report to IARC by Internal Academic Review Team for Mechanical and Materials Engineering, Winter 2008

### 1. Team Membership

The IAD team membership was as follows:

Keith Denton, Tiago Felle, Martin Guay, Hoi Lam, Retax MacDonald, Ian Moore

- Information on median times to completion for masters and doctoral degrees
- Information regarding the status of the three new courses that were to be offered in 2007 (impacting whether the 'breadth' of the program, identified as a strength, is being maintained)
- Information on how the department responded to the previous IAR request to further

documents, but some explicit statements would have been valuable.

The committee asked and received answers to the following questions (not formally, but during the site visit by consultants)

- Information on plans for unspent funds from Alumni donations relative to equipment or facilities development

- Funding for equipment maintenance and reinvestment was judged to be poor relative to Ontario averages (this is also a problem in other Applied Science

- The esprit de corps is generally strong, with good rapport between staff, faculty

and students

The consultants provided 23 specific recommendations.

### *2.3 Reports from Dean of Applied Science and Head of Department*

Both Dean and Acting Head support the facts expressed in the report from the

student numbers and making the selection of courses to be offered “option (stream) rather than Faculty driven.”

### **3.2 *Scholarship and Research***

“Current information about projects, innovations and research in this department,

listed in topic areas, the department is encouraged to present its research studies in a much more cohesive fashion.

The ‘graduates’ section of the website is similarly limited. It simply instructs viewers to



In relation to equity, the proportion of female participants in the undergraduate program has declined from over 20 percent at the turn of the century to less than 15 percent in 2006 (Appendix J). Unfortunately, as stated earlier, the Department does not address this question effectively in its own IAR report. The section on equity is limited to a

description of the university-wide procedures and a very brief and general research on

possible innovations and the Department's final self-evaluation of the strengths and

One other concern regards the department's perspective regarding USAT scores for undergraduate teaching. The Department's average USAT scores on the four key questions fell below the averages for the Faculty of Applied Science and for the University as a whole in every term of every year between 2002 and 2006 (Appendix L). To be sure, there are more positive indicators as well. The Department scores comparatively well in the Exit Polls, suggesting perhaps student assessments have improved by the end of their programs (Appendix K); and the external reviewers report considerable enthusiasm among undergraduate students they met (p. 11). Nevertheless, we suggest that the department carefully consider its USAT results in a comparative context, and take any necessary steps to ensure that the reputation of the undergraduate remain strong.

### *3.4 Service to the University, the profession and the community*

Although the external review suggests briefly that educating students is the major service

that the MME Department provides. It is important to note the other areas in which the

department currently does, and could in future, contribute in a service function.

In their internal review materials, the department itself notes that "Our purpose is to educate engineers who will be leaders and practitioners in our society, primarily in



- ix. The Department is encouraged to have more presence in the Integrated Learning Centre, allowing them more participation in institutional activity and providing more resources for labs.
- x. The Department should also place emphasis on learning of faculty, especially providing training for effective leadership and governance for the future.