December 22, 2014

Dean Crone,

I am writing to provide the update that was requested in Dean Cadwallader’s July 22, 2014 letter to the Dept. of Mechanical Engineering regarding the review of our graduate programs and the Graduate Faculty Executive Committee’s response to the review committee’s report. Three areas were highlighted in that report – teaching load, the graduate handbook, and diversity – and they will be addressed in that order in this letter.

**Teaching Load**

The issue of high teaching workload has been the focus of significant attention in the ME department during the past year. We are addressing this issue in a number of ways. First, we are trying to promote the department’s research activity, which will enable more faculty to buy out of teaching using externally generated funds. This is the preferred solution to the teaching workload issue because it enhances the department’s reputation through the increased research activity while simultaneously providing relief for the department’s budgetary pressure. The current workload policy provides a one-course reduction in teaching load for having what is referred to as a major research program. A major research program is one that supports at least two FTE research assistants. Faculty who have been unable to achieve this level of research productivity cite the higher teaching load as one reason for their inability to raise the necessary external funds. Therefore we have instituted a two-year program during which all faculty will only be asked to teach at the rate of a person who has a major research program and buys out of one course. This represents reducing the teaching load for most faculty by a factor of two, and should provide them with ample time to generate external proposals to support their research activity. We have just completed the first semester of this program.

The second approach that we have taken to reduce the teaching load of the faculty is to consolidate certain courses into a single large section. In order to provide the students with some individualized instruction, and to prevent the faculty member in charge of the course from being inundated by students with questions, we have paired the reduction of a course
to a single large lecture with the introduction of several, smaller TA-led discussion sections. This provides the students with direct face-to-face contact and opens a venue for student’s questions to be addressed in an efficient manner. The TAs also hold office hours for one-on-one discussions that would be nearly impossible to facilitate if there were only one faculty member in charge of the entire course. The professor in charge of the course still interacts directly with the students both in class and during his or her own office hours. The reduction in the total number of sections offered directly reduces the teaching workload.

The temporary two-year reduction of the faculty’s teaching load decreases the teaching capacity of the department by more than can be accommodated by consolidating courses into a single large section. Thus, the third method being employed to address the teaching workload issue has been the addition of academic staff to the department. We have hired, or are in the process of hiring, four new lecturers in the department. To date, we have been able to find highly qualified instructors who, we feel, have not diminished the educational experience of the undergraduate students. We consider this a temporary measure while we work with the Dean to control the enrollment and increase the size of the tenured / tenure-track faculty.

Finally, we have established a committee to take a critical look at how we deliver instruction to our students (undergraduate and graduate), and the resource allocation that accompanies this process. To date, the committee has collected historical data and next semester we expect the committee to make some specific recommendations. The problem of optimizing our curriculum delivery is complex and involves a host of issues that are core to our academic mission.

**Graduate Handbook**

This fall we revised our current version of ME graduate handbook to include updates related to the graduate program changes made to comply with the HLC recommendations. The new handbook includes a grievance procedure for students, as recommended in the committee’s report. The grievance procedure follows the format given in the graduate handbook template ([https://kb.wisc.edu/gsadminkb/page.php?id=34123](https://kb.wisc.edu/gsadminkb/page.php?id=34123)). We are currently in the process of changing over to the new format for the handbook recommended in the posted template. The handbook in the new format will be completed in the Spring semester. In the interim, the current handbook version is available and prominently posted on the ME website, and the revised version that includes the grievance policy will be posted before the start of the next semester.

Once the handbook is completed, we intend to post it in a prominent location on the department’s website. We realize, however, that some students will still not be aware of it or be able to find it. We will, therefore, augment the passive posting of the handbook by actively sending an electronic copy to each and every graduate student and requiring that they send a notification that they have received the handbook. The ME department requires all first-year graduate students to take ME 903 – a seminar course. In the first seminar of each
semester the Graduate Committee Chair will provide the students a short overview of the graduate handbook.

**Diversity**

The ME department considers diversity to be an important issue. We have several faculty who have served, or currently serve on College and University committees that deal with diversity affairs. In the spring semester we invited representatives of the Graduate Engineering Research Scholars (GERS) program to come address the ME faculty and describe how to take advantage of their program for recruiting under-represented graduate students. A number of ME faculty members have pursued graduate applicants using the GERS program and we intend to continue our involvement with the program in the future. Mechanical Engineering’s diversity problems extend beyond historically under-represented groups; women are a significant minority in Mechanical Engineering as a profession and also in our department. We would like to pursue ways to encourage more women to work towards a career in Mechanical Engineering. However, we are not well-positioned or trained to develop substantial K-12 outreach activities. The ME faculty are, however, perfectly positioned to encourage female freshmen in engineering to continue their pursuit of ME degrees. We need to develop programs that make the ME Department friendlier to women and highlight those aspects of the profession that appeal to them. These efforts are in their infancy.

We hope that this overview provides the information that you were looking for, but if it does not, do not hesitate to contact us.

Sincerely,

Jaal Ghandhi
Professor and Chair
July 22, 2014

Jaal B. Ghandhi, Professor and Chair
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Dear Professor Ghandhi:

As you know, an important part of the university’s ongoing review process is the vetting of graduate programs by the Graduate Faculty Executive Committee (GFEC) of the Graduate School. The review committee assigned by the College of Engineering conducted a decadal assessment of the Mechanical Engineering (ME) graduate programs administered by the Department of Mechanical Engineering: Mechanical Engineering M.Eng. (including the named options “Energy Systems” and “Polymer Science”); the Mechanical Engineering M.S. (including the named option “Controls”); and the Mechanical Engineering Ph.D. The review committee included a member of the GFEC who was given the responsibility of attending to graduate training issues of particular interest to the Graduate School. That individual was Professor Gloria Mari-Beffa who led a discussion of the review at the GFEC meeting on June 6, 2014. In this letter, I summarize the committee’s response and the GFEC discussion.

The GFEC response to the review was very favorable. The ME has a long history of success that delivers excellent graduate education. There are strong research programs and the department advocates for good teaching practices. Faculty involvement in the recruiting process contributes to the high quality graduate students who attend UW-Madison, and there is a high employment rate following graduation. This letter will not reiterate all the recommendations contained in the review but will emphasize those that generated most of the discussion at the GFEC meeting. Given that time has elapsed since the self-study and review, we realize that the department may have already begun to address issues identified in the review; however, the GFEC raised the following concerns and would like to receive an update from you on progress and future plans.

- As noted in the review, since your last graduate program review, the number of awarded M.S. and Ph.D. degrees has increased, while the number of faculty have decreased. In addition, the undergraduate program has increased significantly in size. The number of courses taught each semester is large in comparison to most of the department’s peer institutions, leading the committee to conclude that the teaching load is too high. The report suggests a few ways this can be remedied: hiring new faculty, increasing research funding, hiring professors of practice, or reviewing the curriculum in order to consider a course reduction. The GFEC supports the department’s appreciation and support of teaching; however, a strategic plan should be developed to address this issue without negatively impacting the quality of the graduate programs.

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• The graduate student handbook lacks specific information needed by graduate students, some of whom were not aware that such a handbook existed. The graduate program handbook must include consistent graduate procedures related but not limited to program requirements, funding, student appeal process, process for finding a research mentor, doctoral minor/breadth expectations, maintenance of satisfactory progress, and appropriate time to degree. These procedures and processes must be implemented equitably and communicated to students and their faculty mentors through an easily accessible graduate student handbook, ideally made available online. There seems to be some online content that is representative of a handbook, but the program needs to develop a more coordinated and comprehensive document that the students are aware exists. The Graduate School has provided a template for handbook creation at https://kb.wisc.edu/GSAdminKB/page.php?id=34123. In addition, while the graduate students are pleased with the ME programs, students are unaware of any grievance procedures they can follow should they have a complaint. This may be rarely needed, but having such a process is necessary and should be written in the graduate handbook.

• The ME graduate program should continue to strive to increase the diversity of its graduate student population and faculty. While this is a national problem in your profession, the percentage of minority students in this program is somehow below national averages, except for Hispanic students which is slightly higher. The program should also be watchful of the higher than national average of international students (60% versus 42.5% national average). These efforts toward greater diversity should be coupled with mindfulness towards issues of overall program climate and cohesion and not the fracturing of the program into subpopulations.

We encourage you to explore the recommendations in the report, and also commend you on your strong graduate program. We request that you report back to the GFEC in writing no later than December 2014 addressing the above concerns. The above concerns notwithstanding, the GFEC is pleased to accept the report of the Review Committee.

Sincerely yours,

[Signature]

Martin Cadwallader
Vice Chancellor for Research
and Dean of the Graduate School

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