College of Engineering Teaching Committee Final Report
April 2, 2010

Members: Jia Lu (chair), Gary Christensen, Michelle Scherer

Charge 1: Review nominations and recommend a faculty member for the College of Engineering Teaching Award.

The committee met and reviewed the four applications for the Collegiate Teaching Award. The committee made its recommendation for the award to the Associate Dean of Academic Affairs.

Charge 2: Review nominations and recommend nominees from the College of Engineering for the President & Provost Award for Teaching Excellence.

The committee did not receive applications from the College of Engineering. The Dean’s Office solicited nominations and sent applications directly to the Council of Teaching.

Charge 3: Examine the current practice of peer evaluation of teaching in each department and recommend how it can be used to help each faculty improve the quality of teaching.

The frequency and format of the peer evaluation of teaching varies among departments. Each department appears to have developed their own version of a peer evaluation form. We have included examples of these in Appendix A. All departments meet the guidelines put forth by College of Engineering requiring three observations per re-appointment or promotion, but some require more frequent observations and some require two observers per visit. A brief summary by department is given below.

CEE: Each observation consists of one observer visiting one lecture for a total of three classroom visits per re-appointment or promotion.

ECE: Each observation consists of two observers visiting two, consecutive lectures for a total of twelve classroom visits per re-appointment or promotion.

MIE and BME: Each observation consists of two observers visiting one lecture for a total of six classroom visits per re-appointment or promotion.

CBE: For pre-tenure faculty, three observations are conducted each year. Each observation consists of one observer visiting one lecture for a total of nine classroom visits. For tenured faculty, three visits are made by single observers before promotion to full professor.

After discussing the different practices, the committee felt that the practice of visiting two consecutive classes and providing feedback after the first visit that could be implemented during the second visit was successful at helping faculty improve the quality of the teaching. In addition, we felt that a follow up meeting after the visit between the observer and the faculty being observed, particularly for pre-tenure faculty, might be considered as it provides...
a mechanism for some feedback and discussion of teaching strategies beyond what is recorded on the form. Finally, we note that encouraging junior faculty to peer observe faculty with strong teaching skills is something that should be implemented more widely.

**Charge 4:** Examine the effect of removing CGA on the ACE completion rate and recommend additional strategies for increasing the completion rate.

The average completion rate of the ACE forms after removing the CGA for Fall 2009 was 40.18 percent (1661 undergraduate students completed the survey out of a total of 4134). This completion rate was up significantly over the previous year of approximately 30 percent. The ACE completion rate varied slightly across the departments and ranged from a low of 36 percent to a high of 49 percent. The Teaching committee is cautiously optimistic that the increase return rate is due to removing the CGA.

The Teaching committee has the following recommendations to further increase the ACE completion rate.

1. It is recommended that all ACE surveys for a particular student be combined into a single survey for that student. This will reduce student's confusion as to whether or not they have completed all of their surveys. Second, it will make it easier to track which students have and have not completed their survey. Tracking survey completion could be done at the college level or at the department level.

2. It is recommended that the ACE surveys be distributed in week 12 or 13 of the semester. Currently, the surveys are distributed in week 15 which is very busy for the students due to final projects and studying for finals. It is felt that by moving the survey a little earlier in the semester that the students have enough information to evaluate the effectiveness of the instructor, and will be more apt to complete the ACE survey during a less busy time of the semester. The professors will not be able to see the results of the survey until after they have submitted grades.

3. It is recommended that the professors and college advertise to the students that they should complete the ACE survey.

**Charge 5:** Evaluate the need for coordination of energy and sustainability related EFA’s. Identify EFA’s with energy and sustainability themes and recommend strategies to collaborate among them.

There are four EFAs with an energy or sustainability theme. These include ME Energy and Environment EFA, CBE Energy and Environment EFA, and CEE Engineering for a Sustainable World EFA. The ECE department has developed an EFA to allow students to earn the University of Iowa certificate in sustainability. We have included the EFA documents in Appendix B.

After examining the contents of the EFAs, the committee felt that there is no immediate need for coordination between them. Each of the established EFAs appears to have its own emphasis. There is a moderate overlap in course work. The EFAs of CBE, CEE and ME do not overlap in required courses. Among the technical electives, there are only two courses common to all three EFAs (053:159/052:235 Air Pollution Control Technology and
053:107/052:107 Sustainable Systems). Five other courses are common to two EFAs. The ECE’s EFA has a different course structure; it is designed to allow student to combine GED courses and technical electives to satisfy the certificate requirement.

While reviewing the College of Engineering EFAs the committee became aware of the University of Iowa certificate in sustainability. The certificate aims to provide students with the knowledge and skills they will need to contribute to the development of sustainable systems and to understand the complex interplay among them and society, culture, energy, economics, environment, and health. The sustainability certificate requires 24 s.h. of course work, including completion of three introductory courses; four breadth electives - one from each of the certificate's four elective areas - and one project course. Students may be able to count some courses taken for the certificate toward requirements for their major or for a minor. No more than three certificate courses may be taken from any single department or program, and no more than 6 s.h. of approved transfer credit may be counted toward the certificate. The requirements are described at the program website:
http://registrar.uiowa.edu/registrar/catalog/universitycollege/sustainability/

The certificate lists the following College of Engineering courses:

**Introductory Core**
- 057:013 Introduction to Sustainability

**Breadth Electives**

**Changing Environments and Human Health**
- 053:050 Natural Environmental Systems

**Energy, Climate, and Built Environments (one of these)**
- 052:030 Energy and Society
- 053:055/152:162 Principles of Environmental Engineering
- 053:102 Groundwater
- 053:103 Water Quality
- 053:105/012:179 Geology for Engineers
- 053:126/046:126 International Perspectives: Xicotepec
- 053:157 Environmental Engineering Design
- 053:158/175:198 Solid and Hazardous Wastes
- 053:159/052:235 Air Pollution Control Technology
- 053:192 Environmental Engineering Seminar
- 053:195 Contemporary Topics in Civil and Environmental Engineering (when topic is public transit operations and planning)
- 056:155 Wind Power Management
- 058:048 Energy Systems Design

**The Power of Culture and Society**
- 052:030 Energy and Society
**Project Courses (one of these)**

- 053:107/052:107 Sustainable Systems
- 053:141 Design for the Developing World

The committee felt that the certificate program presents an opportunity for engineering students. It may be difficult for engineering students to satisfy the required 24sh without taking additional coursework due to prerequisites and other special requirements (such as no more than three courses may be taken from a single department), but not impossible. The committee recommends the departments (particularly ones which do not have an energy-sustainability EFA) examine the program requirements and develop strategies to allow student to earn the certificate.

**Charge 6:** *Participate in redefining EDPC’s role in supporting the college’s teaching mission.*

The teaching committee agreed to participate in an *ad hoc* committee led by the Associate Dean of Academic Affairs.

**Charge 7:** *Recommend specific charges for the 2010-11 Teaching Committee.*

We recommend the following charges for next year’s committee:

1. Review nominations and recommend a faculty member for the College of Engineering Teaching Award.
2. Continue to examine the ACE completion rate. If the strategies recommended by this committee are implemented, evaluate their effect. If necessary, recommend additional strategies for increasing the completion rate.
3. Evaluate the need for coordination of energy and sustainability related EFA’s within the College.
4. Examine the University of Iowa certificate in sustainability. Evaluate the feasibility for engineering students to earn the certificate using GED and EFA courses.
5. Participate in defining EDPC’s role in supporting the college’s teaching mission.

**Charge 8.** *Submit an interim report by January 31, 2010, and final report by April 1, 2010*

The interim report was submitted in February. This document is the final report.