2009-2010 Final Report
College of Engineering Curriculum Committee
The University of Iowa

April 7, 2010

Members:

Prof. Mark Andersland (chair)
Prof. Pablo Carrica
Prof. William Eichinger
Prof. Julie Jessop
Scott Ruebush (student representative, nonvoting)
Dean Alec Scranton (*ex officio*, nonvoting)
Prof. David Wilder

Summary:

During the AY2009-10, the College of Engineering Curriculum Committee met 10 times in its entirety and as subcommittees at various other times to address specific charges. Summarized below for each charge are the committee's actions to date and recommendations.

Charge 1: "*Consider the impending cuts to the TA Budget, and provide recommendations on how to optimize the use of available funds to support the teaching mission of the College (at all levels). Consider specifically the impending 20% reduction in TA funds for the core curriculum (i.e., 059:xxx and 057:xxx) and make specific recommendations for how to best use these resources.*"

Summary: The committee reviewed ten semesters of core curriculum TA assignment data, discovering in the process that student-to-TA ratios for some core courses vary substantially from semester to semester. The committee also reviewed surveys, returned by 22 of 33 AY2009-10 core instructors, describing how TAs are used, how many are ideally needed, how many are currently undergraduates, and how many could be undergraduates. Finally, the committee discussed, with 059:xxx course coordinators, how courses might be restructured to require fewer TAs—ideas included: reducing the amount of graded homework, replacing homework grades with quiz grades or relying more heavily on publisher supported computer-graded assignments. The committee consensus is that next year's 20% funding shortfall can be absorbed, without impacting instructional quality, through more efficient assignment of TAs but that further cuts are likely to erode course quality unless courses are restructured.

Recommendations: The committee recommends that the AY2010-11 20% core TA funding shortfall be made up: (1) by assigning future TA FTEs to maintain the maximum recently accepted (by instructors) student-to-TA ratios and (2) by directing instructors to replace graduate TAs with undergraduate TAs whenever replacement can be made (as indicated by instructors) without impacting course quality. The committee projects, based on the available Sp'10 and F'10 enrollment data and the instructor survey results, that each of these actions will reduce the TA budget by 10% or more. The committee further recommends that core course coordinators be directed to begin discussing, with instructors, approaches to restructuring their courses in ways that reduce their need for TAs without eroding instructional quality.

Charge 2: "*Participate in the Leadership, Ethics, and Professionalism (LEaP) initiative, contributing, as requested in the redefinition of this task force, and examine possible enhancement in these areas within the College Core Course Curriculum.*"

Summary: The committee reviewed the records and recommendations of the original LEaP committee and distilled from these records a subset of short-term goals. Aspects of the LEaP initiative were also discussed with Prof. Allen Bradley (CEE professor and EPS I coordinator), Bob Chiusano (Advisory Board member and former Rockwell VP), Jane Dorman (SDC Director of admissions and 1st year experience) and Phil Jordan (SDC Director of personal development). The committee consensus is that a change in the CoE's attitudes towards leadership, ethics and professionalism is both needed and attainable and is best begun in the classroom. From day one professors should expect no less of students in class than their employers will expect when they graduate, including respectful behavior and quality work.

Recommendations: The committee recommends: (1) development of a required 1 s.h. 2nd semester sophomore year LEaP seminar course, coordinated by the Professional Development Center, covering leadership, professionalism, ethics, interviewing and transition skills (Phil Jordan has agreed to teach this course); (2) addition, to the freshman seminar syllabus, of a requirement that enrolled students attend at least one student professional organization meeting (Jane Dorman has agreed to make this part of the course requirements); (3) increased use, in the core curriculum, of the standard problem solving format developed in EPS I; (4) development of some mechanism for recognizing student leadership and professional activities, for instance, a transcript honor commendation, or CoE or departmental awards; and (5) initiation of a faculty dialog, perhaps during the Sp'10 CoE faculty meeting, concerning ways of developing professionalism in classrooms college-wide. While the curriculum committee should continue to monitor this dialog, the dialog and subsequent LEaP developments should be coordinated by a reconstituted LEaP committee.

Charge 3: "*Consider the continuation of Rhetoric as a requirement in the engineering curriculum.*"

Summary: The committee considered three alternatives: retain, modify or drop Rhetoric. Generic Rhetoric and CTC writing syllabi were reviewed. The charge was discussed with Scott Coffel and Jennifer Ambrose (CTC directors and former Rhetoric instructors), Prof. Ed Dove (BME professor and UI Faculty Senate VP), Prof. Allen Bradley (CEE professor and EPS I coordinator), Bob Chiusano (Advisory Board member and former Rockwell VP), and Prof. Dennis Moore (DEO, Rhetoric Department). Surveys of the opinions of faculty in all CoE departments and students, through the Engineering Student Council, were conducted. The consensus of those surveyed and the committee is that Rhetoric is important and that the improvements that need to be made can be made through modification of the existing Rhetoric course.

Recommendation: The committee recommends that needed improvements to engineering students' Rhetoric experience be made by using flexibility in the current Rhetoric syllabus to better fit Rhetoric's assignments to engineering students' needs. Immediate actions include working with Rhetoric: (1) to declare selected Rhetoric sections to be engineering sections (or at least math, science and technology sections) for F'10 to make it easier for Rhetoric to make appropriate TA assignments and syllabi modifications and easier for students to identify these sections; (2) to ensure that a CoE CTC staff member, or another engineering speaker, is given the opportunity to outline, at the late summer Rhetoric TA training sessions, how more math, science, and engineering related assignments could be incorporated into Rhetoric syllabi; and (3) to, if possible, actually have a staff member from the CTC teach an engineering section to help modify the syllabi to better meet engineering students' needs. The committee should continue to monitor Rhetoric to ensure that it is serving the needs of the engineering students.

Charge 4: "*Review Course Activity Reports (CARs) for the College of Engineering core curriculum courses (059:xxx & non-college courses) in coordination with the core coordinators.*"

Summary: Of eight possible AY2008-2009 059:xxx CARs the committee reviewed only five, 059:006 (Sp'09), 059:007 (F'08), 059:007 (Sp'09), 059:008 (F'08) and 059:009 (F'08) because those for 059:005 (F'08), 059:008 (Sp'09) and 059:009 (Sp'09) were not submitted in time to permit review.* The committee did meet with all five 059:xxx course coordinators. The committee and the coordinators are satisfied with the CAR reporting process and found the CAR's "Log of Recent Improvements, Recommendations and Comments Section" especially informative. The committee also reviewed the 10 of 24 math, 1 of 5 physics and 0 of 4 chemistry preparedness surveys returned by Sp'09 instructors of selected CoE courses with core math, physics and chemistry prerequisites, along with the syllabi of all AY2008-09 core math, physics and chemistry courses (22M:031-034, 004:011 and 029:08). As the math preparedness surveys were mostly negative, the committee also reviewed all core math exams given in F'09 and compiled a list of all core math instructors for the past five years. The committee consensus is that all 059:xxx courses are running smoothly and meeting their objectives, while there may be some weakness in the math core. The committee has too little definitive information to draw conclusions concerning the chemistry or physics cores.

Recommendation: In AY2010-11, the curriculum committee should more carefully survey student and faculty satisfaction with the math core. This survey should include interviews of interested students and faculty and should involve, from the beginning, representatives from the Mathematics department as they have, and continue to be, supportive of efforts to improve CoE students' core math curriculum.

Charge 5: "*Review the joint CBE/Pharmacy proposal to create a new Pharmaceutical Engineering and Science degree program and propose a COE faculty motion regarding its approval.*"

Summary: This charge was received March 10, 2010. It was reviewed during parts of three curriculum committee meetings in discussions led by curriculum committee members and CBE Professors Alec Scranton and Julie Jessop. The committee consensus is that the program proposal is well motivated and well thought out and that the CoE should do everything it can to move the proposal forward.

Recommendation: The committee recommends that the following motion be adopted by the CoE faculty.

Motion: The Faculty of the College of Engineering approves in principle the attached curriculum for the Bachelor of Science in Pharmaceutical Engineering and Science which, if established, would be taught in collaboration with the faculty of the College of Pharmacy.

Charge 6: "*Submit an interim report by January 31, 2010, and final report by April 1, 2010.*"

Summary: The committee submitted its interim and final reports to the EFC as requested.

Respectfully submitted,

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* Course numbers added April 14, 2010, as requested by the EFC.