CCGB Meeting Agenda, October 29, 2010

1. Approval of minutes
2. Undergraduate announcements
3. Definition of an ENGRD Course (S. Baker)
4. Discussion of an ENGRD Course Proposal (S. Baker)
5. Review of ABET accreditation visit

CCGB Minutes, October 22, 2010

Ex-Officio: K. Dimiduk, L. Schneider, F. Shumway
Other: C. Pakkala

Approval of Minutes: The minutes of the 8/27/10 CCGB Meeting were approved as written.

Undergraduate Announcements: F. Shumway said that this weekend is Parents Weekend, so we may see extra people today. This is mostly a university-sponsored event. Engineering will do a presentation for parents in Olin 155 on Saturday. D. Gries said that the ABET visit starts Sunday.

Discussion of CEE using 1 Advisor Approved Elective to meet an ABET Science Requirement: W. Philpot said that according to Criterion 9 (imposed by ASCE and enforced by ABET), the curriculum “must demonstrate that graduates can apply knowledge of mathematics through differential equations, calculus-based physics, chemistry, and at least one additional area of science, consistent with the program educational objectives.” The phasing was meant to exclude physics and chemistry courses as “additional science” and to promote breadth over depth. Consistent with the common curriculum, the CEE intent of the requirement has been to provide depth rather than breadth in their courses. As it stands CEE will need to add a “basic science” to their requirement next year.

ABET removed ChemE’s physical chemistry. Now the flexibility of the ChemE degree will be further reduced. W. Philpot said that the requirement came up suddenly, so the CEE will probably have a weakness with ABET. The short-term solution is to steal an advisor-approved elective and have students take a science course. CEE may end up coming to the CCGB for a solution to the science sequence later. Change needs to be a deliberate process.

M. Duncan said that ABET is insisting on uniformity now, which is dangerous. M. Duncan said that ABET has forced ChemE to change their curriculum, which changes their program from being the best to becoming mediocre. S. Baker stated that it is not ABET that sets these standards; it is the professional societies. The push-back should be to them. M. Duncan said that the professional societies give vague standards that ABET interprets. S. Baker said that ABET has members from the professional societies; they decide the rules. It is important that the fields push back to the professional societies.

Discussion of Physics 1112: K. Dimiduk said that last year a Physics representative came to the CCGB and wanted to remove thermodynamics from the physics sequence. The CCGB felt that it should remain in Physics, and Physics put thermo in Physics 1112 so everyone would see it. They shortened the introduction to velocity and acceleration. They took harmonic motion and put it with 1 day of forces and 1 day of energy and shortened coverage of rotational motion and momentum. P. Krasicki is suggesting that Engineering submit a question or two to put on the course evaluation to see how the changes are working.

E. Fisher said that she wonders if the students need this much thermo in physics. S. Baker said that it looks as though there are about 4 lectures more than the students need to get to entropy. He is concerned about giving harmonic oscillators short shrift. E. Fisher asked if there were overlap between this and
freshman chemistry. K. Dimidkuk said that if you compare this with CHEM 2090, there doesn’t seem to be any overlap. S. Baker said that he doesn’t want rotation being reduced. Now the course gives the perception that we want more depth in thermal physics. The discussion was whether we need a thermal sequence in physics at all. The idea is to introduce concepts. Now the balance looks off. E. Fisher said that the students will get thermal in other courses. She would like it to be there, but not to this extent. L. Trotter noted that there is only 1 lab on thermal energy; perhaps the students could do some of this in the lab and get the coverage.

K. Dimiduk said that pacing is important. We don’t want the students to feel crunched. The CCGB agreed to let Physics try this for a year and get feedback. This is being taught this semester. S. Baker said that we need to determine how much we’ve lost, i.e. harmonic oscillators. Something on the final or an assessment question would be good. W. Philpot said that the CCGB members should let K. Dimiduk know if they want any assessment questions given for this course.

**Definition of an ENGRD Course:** S. Baker said that the Curriculum Task Force of 2006 came up with recommendations for the ENGRD courses and talked about changing them to ENGRF (Engineering Fundamentals Courses). The ENGRD courses were intended to provide breadth in engineering sciences. Students needed to take 3 courses from 4 categories. Since the ENGRD courses were created, the number of categories has expanded dramatically and the requirements have decreased. We need to decide what the ENGRD courses should be. Shef came up with a proposed definition of ENGRD courses:

**ENGRD courses are designed to provide depth in fundamental but broadly applicable engineering and applied science topics. ENGRD courses build on the basic sciences (physics, chemistry, computing, biology, or math) and make a first quantitative link to applications. Each ENGRD course should introduce students, in depth, to a set of tools that will be broadly applicable in subsequent engineering courses and will allow them to describe the world in a quantitative way and to engineer devices and processes. Breadth may be accomplished by taking ENGRD courses from different disciplines. An ENGRD course must (1) require at least one prerequisite from the math/science/computing core and (2) require no prerequisite past the m/s/c core.**

The proposal tries to encapsulate the thoughts of the task force. The ENGRD courses should be of benefit to the students.

E. Fisher said that she likes the description. N. Mahowald likes that there are no prerequisites beyond the core courses. S. Baker said that if the ENGRDs are supposed to provide breadth, you can’t require a sequence for them. ENGRD 2030, dynamics breaks this rule. W. Philpot said that we should see how many students use dynamics as an ENGRD before changing it to an MAE course. S. Baker said that only students who take 2020 use 2030, so they never take 2030 as a distribution course. The definition provides boundary conditions on these courses, which is important for the future.

E. Fisher asked for time for the departments to mull this over. W. Philpot suggested that the CCGB representatives discuss this with their colleagues and come back to the CCGB next week for a discussion.

**Discussion of the ENGRD Course Proposal EAS 2200:** S. Baker said that EAS would like to list the EAS 2200 course as an ENGRD. The course fits well as an introduction to a particular field, but it is not close to the original ENGRD course definition of including “tools that every engineer should know”. N. Mahowald said that she would think physics should be a pre-requisite for the course. K. Dimiduk said that a theme of the ENGRD courses is trying to take material and apply it to problems. This course looks like it would have that. N. Mahowald said that there is a question of how broad an ENGRD should be. Do we want a set of tools broadly applicable in science and engineering courses? E. Fisher said that it
seems the course would introduce concepts of value to a lot of engineering courses but not many tools. N. Mahowald said that the course would apply equilibrium and force balance, which would count as tools. E. Fisher asked whether the emphasis of the ENGRD courses should be kept on tools or tools AND concepts. W. Philpot replied that the emphasis should be on both tools and concepts. Adding the word “concepts” is a good thing. We need to get the definition of the ENGRD right. The CCGB should meet next week and firm up the ENGRD definition. S. Baker said that we should get some reactions on the course proposal. Historically speaking, it wouldn’t qualify as an ENGRD. He doesn’t see this course as an ENGRD, but he is willing to accept arguments on this. N. Mahowald said that she thinks CEE students and students interested in energy would be interested in this. Many of these ENGRD courses are tied to majors and aren’t broadly applicable. L. Trotter said that any proposal should be consistent with the definition of an ENGRD.

**Discussion of Academic Integrity:** D. Gries said that in 2009 about 30 people were found guilty of academic integrity offenses; few appealed. There was a primary hearing for the students by the faculty member. We need to find a way of telling students about repercussions from cheating. We need to tell them the rules on almost every assignment. This is a big problem to be addressed. M. Duncan said that he is not convinced that warnings are effective. It is only when students are prosecuted that word gets out. K. Dimiduk said that she is concerned about how many students get multiple first offenses. If they get out of academic integrity actions by retracting their homework, they might commit offenses multiple times. M. Duncan said that CBE keeps a list of students with offenses and they come down hard on them if they commit a second offense. N. Mahowald said that it seems the 1050 course could have a role modeling situation to address the issue of academic integrity.

The meeting adjourned at 9:02 a.m.