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Memorandum

To: CBE Faculty
From: Assessment Subcommittee (DJK, TWR, RES)
Re: EBI Survey Results - Summary of Observations

The EBI survey is a standardized, computer-read questionaire designed to address a range of program outcome issues. Many of the questions relate to specific ABET outcomes and objectives, and thus map onto our department outcomes and objectives. This survey is intended for all graduating seniors from our College of Engineering, and is also being used at a number of other universities. We obtained questionaires for our December 2000 and May and August 2001 graduates. This is the second year we have used this exit survey. We plan to continue using this survey with future graduating classes to track changes in our program.

This survey provides several useful types of feedback on our program. First, it allows our exiting graduates to comment on their perceptions of how the program has prepared them in a range of areas. Second, it allows the faculty to compare our student responses with several appropriate averages from chemical engineering graduating seniors at other schools. The EBI compilations show comparisons of our student responses with all other universities, with our Carnegie Class (Research I universities), and with a Select 6 group of peer schools. Our college chose this Select 6 group to include the University of California - Berkeley, University of Minnesota, University of Texas - Austin, University of Illinois - Urbana Champaign, Pennsylvania State University, and the Ohio State University. This is a very respectable comparison group of public universities, since these departments ranked #2, 3, 6, 9, and 19 (OSU was unranked), respectively, in the recent 2001 US News & World Report rating of chemical engineering undergraduate programs (UW-Madison was again rated #4). (On the web, you may go to http://www.webebi.com/EBIStudies/Engineering/EngList/englist.htm to find a complete list of the 52 schools participating in the EBI survey in 2000.)

Overall, we are impressed by the ratings turned in by our students. In most areas, we have scored well above the group averages, even as some absolute scores indicate that all schools have room for improvement. Focusing on the Select 6 comparison group, we find that our student ratings put us #1 or #2 out of the 7 schools in many of the categories. In 8 of 14 categories, our ratings are > 15% above the mean of the Select 6 group. In 12 of the 14 categories our ratings are above the group average. Considering that several of these schools are also Top-5 departments, these results are very encouraging.

The list of “Top 15 Most Competitive Questions” provides nice reinforcement of our program content, and validation of the internal assessments of many key program components. Given the perennial concern with advising, we are pleased to see the high ratings of academic

advising by non-faculty (Student Status Examiner) (#1) and by faculty (#9). Students are also confident of their enhanced ability to function on multidisciplinary teams (#8, rated 0.95 points above the Select 6 average). Other items on the list are also instructive.

The list of "Bottom 15 Least Competitive Questions" provides topics for further discussion, and consideration for future changes. Many of the items relate to the design experience. Seven of these fall in the categories "Design Experience Issues" or "Impact of Engineering Solutions." There had already been ongoing discussion of the appropriate integration of these issues into the curriculum, and our solution has been to spread many of these ethical, safety, social, economic, political, and environmental issues across as many courses as possible rather than piling them up in the already-full senior design course. As seen from our course grid, many courses include some level of coverage of these societal-impact topics in their examples and projects. Thus, the low ratings in these categories are disappointing, but these ratings are also a product of the question wording that directs students to consider only coverage of these topics in their senior design course. Clearly, further attention to these topics at several levels is desirable.

On the list of "Bottom 15 Least Competitive Questions," the single greatest negative difference (-1.00) reported was for the quality of teaching in physics. This has been found to be a general result in other departments in the college, as well. Therefore, we intend to address this concern at a college level in the Academic Programs, Curriculum, and Regulations Committee (APCRC) and begin discussions between a group of engineering faculty and the Physics Department. These may lead to improvements similar to those produced in Calculus instruction by similar discussions between an APCRC subcommittee and the Math Department in the early 1990s (as documented in the Self Study). Overall, this list of least competitive questions is fairly short, in that 62 of the 71 questions returned scores above the average for the Select 6 group; only 9 questions had below-average responses, and only 3 questions were 0.25 or more points below the group average. Still, this list of least-competitive areas will be discussed in future faculty curriculum and course development discussions to see how we can improve the appropriate coverage of these topics.

These notes are based on a discussion at the Faculty Meeting ???.