Annual Report of the School of Engineering Outcomes Assessment Committee
May 7, 2010

In its first year as a bylaws committee, the Outcomes Assessment Committee of the School of Engineering met three times each term, including 10/1/2009, 11/20/2009, 12/11/2009, 2/3/2010, 4/2/2010, and 5/7/2010. The year’s business included:

- Reviewing results of past surveys, including:
  - Historical trends for the Senior (exit) Survey.
  - 2009 Sophomore Survey.
- Reviewing survey instruments to be administered in the spring of 2010, including:
  - 2010 Alumni Survey.
  - 2010 Freshman Experience Survey.
  - 2010 Sophomore Survey.
- Evaluating the effectiveness of two recent all-school curriculum changes:
  - Math 50: Calculus with Engineering Applications.
  - Revised ES 2: Introduction to Computing In Engineering.
- Listing the Key Performance Indicators (KPIs) for each department and program, as a way of informing future survey changes.

Survey reviews did not result in substantive changes to the questions being asked. However, discussions indicated that several key performance indicators (KPIs) are not yet being measured, and that program representatives agree on the KPIs that should be measured (see below).

SOE OAC also evaluated two recent curriculum changes: Math 50 and ES 2. This evaluation was done by OAC because the courses are intended for all Engineering students. The evaluation did not concern whether the courses were good, but rather, whether they satisfy the objectives set forth in making the curriculum changes.

The new ES 2 was expanded from a half credit to a full credit and moved to the spring semester, to ensure a better interaction with and complement to the freshman mathematics curriculum. The committee concluded that the revised course was doing its job and that the change was a success, from data collected from the Freshman Experience Survey and Sophomore Survey. Some apparent deficiencies in ES 2 were traced to choice of language for survey questions. However, concerns over the language taught in ES 2 (MathCAD versus Matlab) remain to be addressed.

Math 50 was intended to address a growing trend in AP credit in Engineering. On average, students currently enter the School of Engineering with at least one Math AP credit. Math 50 was intended for students with one Math AP credit, and goes through all of Calculus 1 (Math 11) at an accelerated pace, after which it covers Calculus 2 (Math 12). Assessment data used for the evaluation included the Freshman Experience Survey, the Sophomore Survey, and grade reports for students in subsequent courses (Math 13 and Math 38). From this data, OAC concluded that Math 50 did no harm, but that from the data, there is no evidence that it is better than the alternative of Math 11 + Math 12. When this
result was reported to the Curriculum Task Force, however, they considered this a complete success; Math 50 was not intended to do better than Math 11 + Math 12 but to equal that option in performance. By that standard, Math 50 is a complete success.

The committee also had an extended discussion over the Key Performance Indicators (KPIs) that determine whether a program is achieving its goals. Examples of KPIs that we discussed include:

- **Employability**
  - Years employed in Engineering?

- **Suitability for advanced degree**
  - Tried/succeeded in graduate school admission/graduation?

- **Engineering practice**
  - Taken/passed the FE and PE exams?
  - Lead role in design/project group?
  - Authored patents?

- **Leadership**
  - Years with management responsibility for others?
  - Years with decision-making responsibilities?

- **Ethics/social responsibility/active citizenship**
  - Membership in professional societies?
  - Pro bono or volunteer work?
  - Elected position in organization?
  - Teaching and mentoring?

The next cycle of survey review will be informed by these and perhaps other KPIs. This led to a discussion of how best to display the KPIs for program use, and The Office of Institutional Research and Evaluation (OIR&E) worked to create a “big board” of KPIs that we can use as an abbreviated report of survey results. After some initial tries, we settled upon depictions such as:

![Bar Chart](chart.png)

This chart depicts years of employment as reported on 2007, 2008, and 2009 instances of the alumni survey, with responses from alumni 2, 5, and 10 years after graduation.
Business deferred until next year includes an evaluation of the Introductory half-courses in Engineering for first-term freshmen.

Respectfully submitted,

Alva L. Couch
Chair, SOE OAC.