

CRITERION 4. CONTINUOUS IMPROVEMENT

Information Used for Program Improvement

Figure 4-1 shows the process for gathering and evaluating program performance data. The co-op and PAPR 300 evaluations by industry supervisors and PSE alumni surveys provide valuable data for use in a “long-loop” program planning cycle. An element that is missing from the present system is an ongoing process for obtaining information from the “permanent” employers of our graduates, similar to the industry survey that was done in 2002. The Paper Science Foundation is not represented in Figure 4-1, even though members of the Foundation are valuable sources of information. The department needs to design a formal, documented method for interacting with the Foundation for program improvement. The information obtained from these sources on industry trends, career satisfaction, etc. will allow long term adjustments to the program.

Student performance on the embedded assessment instruments described in criterion 3 will provide information for use in the “short-loop” program evaluation cycle, and allow short-term adjustments for the strengths and weaknesses of individuals and cohorts progressing through the program.

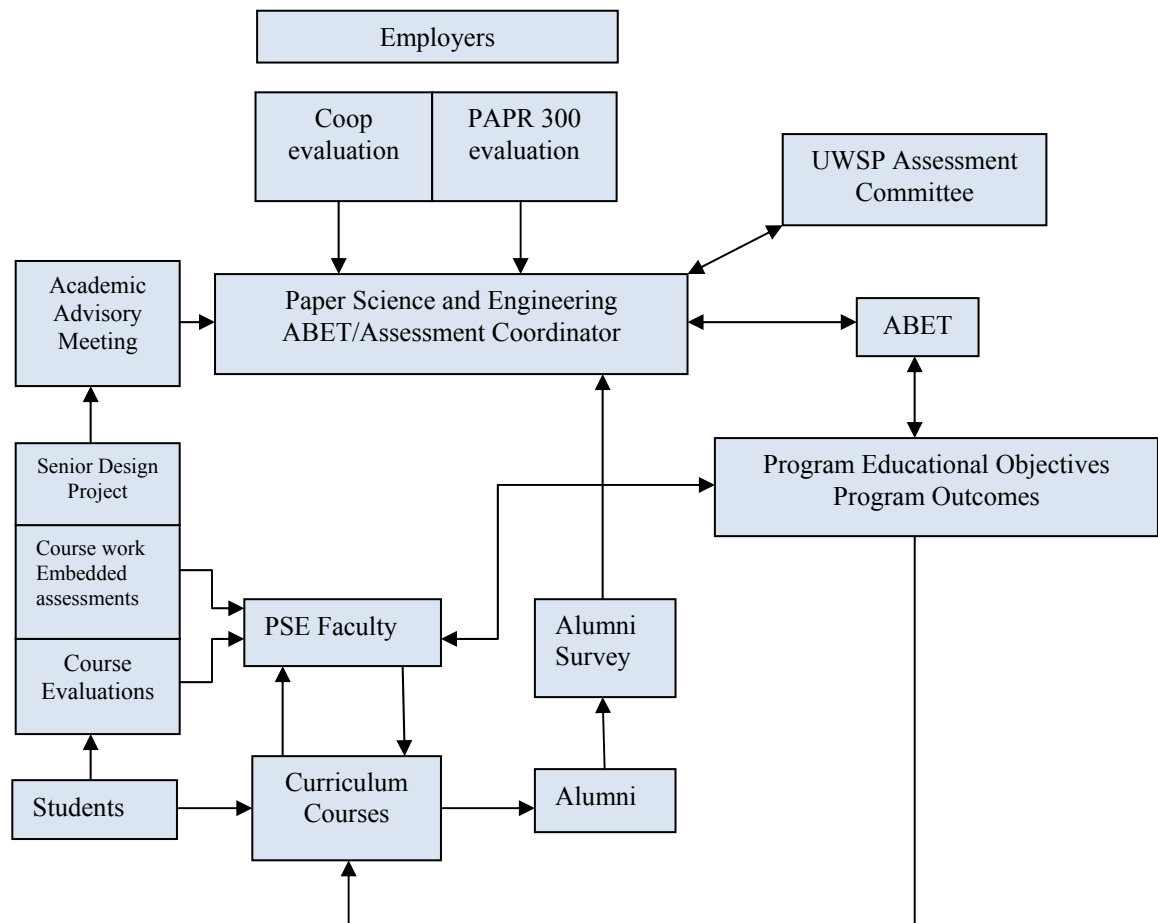


Figure 4-1. Assessment processes

Actions to Improve the Program

This report is for initial accreditation, so this will be the first general review. However, the PSE faculty has always been responsive to the need for curriculum adjustment. It is therefore of interest to describe the most recent changes in curriculum: the addition of PAPER 484 as a new course and the addition of Biochemistry as an alternative to Physical Chemistry. The assessment process continues to develop and is described here as well.

The addition of PAPER 484 worked very well. Extending the senior design project across both semesters created more space in the senior course schedule for engineering economics, engineering ethics, guest speakers (professional engineers, technical consultants, etc.), safety discussions, and laboratory experiments with the new equipment. This curriculum change was well received by industry attendees at the last two Academic Advisory meetings (May 2007 and 2008).

Adding Biochemistry as an alternative did not work well. The Chemistry Department indicated that PSE students are not well prepared for the course and performed poorly. This change will be reversed in the fall 2008 semester; the current biochemistry course will no longer be an option for PSE students.

The decision to pursue ABET accreditation resulted in some significant changes to the assessment processes in the department. The first action was to send Biasca and Ring to the ABET Commission Summit meeting in November 2006. The meeting proved valuable in that the faculty made contact with ABET personnel, learned more about the structure of ABET and gained an understanding of the accreditation requirements.

Next, all PSE faculty attended the 2007 ABET Faculty Workshop on Assessing Program Outcomes and the 2007 ABET Commission Summit. These meetings significantly improved the understanding of ABET accreditation procedures by all PSE faculty. Ideas generated during these meetings are gradually being introduced into the curriculum at logical assessment points, and the reporting formats for assessment data will be significantly improved during the next accreditation cycle. Furthermore, PSE faculty members are now creating rubrics for use on all major class projects, with the goal of having rubrics for use on embedded assessments during the 2008-09 academic year. These rubrics will contain statements of performance criteria and descriptions of the performance levels for all program outcomes. The faculty will develop common rubrics for use in evaluating problem-solving, teamwork and oral communication skills, similar to the rubric currently used for writing skills. These changes represent significant improvements to the informal assessments performed in the past.

Future assessment of program outcomes will take place using electronic portfolios. This project has been in progress for two years. The availability of appropriate software (with campus support) has been the limiting factor. These portfolios will contain required elements (those listed as assessment items in Criterion 3) as well as student selected items. We hope to begin testing a student-constructed e-portfolio in the fall 2008 semester.