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TO: Debendra Das, Department Head, Mechanical Engineering
FROM: Dana L. Thomas, Provost's Faculty Associate for Assessment and Development
Doris Nichols for Dana Thomas
RE: Outcomes Assessment Plan

Thank you for submitting an initial outcomes assessment plan for your degree programs. Your work is sincerely appreciated. Your future students will reap the rewards of continuing curricular improvements resulting from your collection and review of assessment information.

As you know, finalized plans are due in your Dean's office and the Provost's office by March 15, 1999 and some data collection and summarization is due by May 15, 1999. In addition, during the next year the expected student learning outcomes for your program must be published in one or more of the following: the UAF catalog, program brochures, or on your departmental web page. I encourage you to examine UAF's outcomes assessment web page (<http://www.uaf.edu/provost/outcomes/>) prior to revising your plan.

B.S. in Mechanical Engineering: I am familiar with ABET 2000 and the related outcomes assessment web site at http://www.abet.org/eac/EAC_99-00_Criteria.htm#EC2000.

Your current plan clearly identifies expected student learning outcomes in agreement with ABET requirements and appropriately uses multiple measures to assess student learning. Your uses of the FE exam, a capstone course, and surveys of your students for assessment agree with the requirements as well. However, some of the criteria stated are not generally accepted for student learning outcomes assessment. I offer the following specific comments and suggestions:

1. Course completion and grades of C or better in specific courses are generally not recognized as outcomes assessment, (see, for example, Cecilia Lopez's paper "Opportunities for Improvement: Advice from Consultant-Evaluators on Programs to Assess Student Learning", March 1996; please let me know if you would like a copy of this paper). This is the case because the completion of a course with a grade of C or better does not provide your department with specific information useful for curricular reform. That is, you do not get information highlighting strengths and weaknesses. For example, using this type of criterion, all your students could decide not to learn one specific small area of a course, all

still get a grade of C or better, and your program may never realize it. Therefore, I suggest you eliminate the use of course completion with a grade of C or better as a criterion and adopt measures which allow you to determine more specifically what students are learning or not learning in your program. For example, having a group of faculty members or an advisory committee review student work according to some specific rubric, e.g., the ABET expectations, would provide more relevant information for curricular reform.

2. Your implementation procedures (who, when, and where) should include the identification of a faculty group or advisory committee which will review all assessment information collected and the scheduled review of this information, e.g., each May. You did note that a report would be produced every three years. Assessment information should be collected and summarized annually even if you will report on it only every three years. Given that your plan was submitted in 1996, I anticipate an assessment report this May.
3. The requirement of the FE exam is good for your program and for your students. However, unless you get specific information on student strengths and weaknesses from the results of the FE exam, passing rates alone provides little guidance in terms of curricular reform. You are welcome to continue to include the FE exam in your assessment plan, I just wanted to make clear its limitations for the purpose of curricular reform.
4. The alumni and employer interviews you mention are clearly appropriate. Please forward copies of the survey questionnaires you plan to use to your dean and my office for inclusion in your assessment file.
5. If you have not seen it already, I encourage you to examine the outcomes assessment plan put together for Engineering at Clemson University. This work can be examined at http://www.succeed.vt.edu/products/outcomes/ppg_final.html. I also encourage you to examine the excellent assessment plan written by your colleagues in Electrical Engineering when revising your plan.

M.S. program: This plan is also a good start at assessment but requires some revision. I offer the following suggestions:

1. The stated expected learning outcomes are good. However, the criteria upon which these will be assessed are inappropriate and/or incomplete. In particular, the passing rates on comprehensive exams or thesis or project defenses does not provide your program with information needed for curricular reform. Gathering the faculty once a year to collectively review the strengths and weaknesses of student performances on these may provide useful information resulting in curricular change. The idea is not to re-evaluate individual students but to get aggregate information about areas to improve. I encourage your program to develop a rubric of expectations for theses and projects, complete the rubric for

each student, compile a summary of results, and collectively (all faculty members) review the summary and evaluate the need for curricular change.

2. I encourage you to adopt a more standard format for your plan as that given on the UAF assessment web page (<http://www.uaf.edu/provost/outcomes/>). Additionally, I encourage you to examine the excellent plan submitted by Electrical Engineering.

I hope you find these suggestions useful and informative. If you have any questions concerning these suggestions, please contact me by whatever means you find most convenient.

cc: Edward C. Murphy, Interim Dean, CSEM