UAS Pre-Engineering Program Assessment Report
Academic Year 2010-2011
Date: May 24, 2012

Goal 1. Increase the number of engineering majors in the state of Alaska by recruiting and retaining students in the UAS Pre-Engineering Certificate Program

a. Annual Assessment of Recruiting:

i. Track the number of students taking 1 or more ENGR courses at UAS

There were 16 students taking 1 or more engineering course, with 24 total students enrolled across the three engineering courses offered during AY 10-11.

ii. Track the number of new Pre-engineering majors

There were 16 students enrolled as pre-engineering majors during AY 2010-2011.

b. Annual Assessment of Retention:

i. Track the number of Pre-Engineering certificates awarded

One certificate was awarded during AY 10-11; however, 4 additional students actually completed the certificate requirements but did not apply for graduation. These certificates will be reflected in the AY 11-12 report.

ii. Track the number of students who transfer to a baccalaureate engineering program (in-state and out-of-state)

Four students transferred to B.S. Engineering programs, all within Alaska – three to UAF (Civil) and one to UAA (BSE, electrical emphasis)

iii. Track the number of Pre-Engineering students retained at UAS through a change of major

One student declared a B.S. Math major at UAS and plans to complete that degree here at UAS prior to transfer for completion of a B.S. in Electrical Engineering.

iv. Track the number of UAS Pre-Engineering students who complete a BS in engineering at UAA or UAF

No students have yet completed a B.S. in Engineering (UAS's Pre-Engineering program itself is only 3 years old, and the first student transfers occurred this year)

Goal 2. Foster an interest in and understanding of the engineering profession and opportunities in Alaska with an emphasis on Southeast Alaska.

a. Annual Assessment:

i. Track number of student internships/employment with local engineering firms

Five pre-engineering students, to my knowledge, held engineering-related internships or employment with local firms during the summer of 2011. Employers included HECLA Greens Creek, AEL&P, and Miller Engineering.

ii. Track the number of students who complete the engineering seminar

Seven students completed the ENGR seminar course in Spring 2011.

Goal 3. Prepare students academically for transfer into the 2nd year of a 4-year baccalaureate engineering program, with emphasis on UAA and UAF.

a. Student learning objectives: Develop skills in problem solving, teamwork, engineering ethics, and communication

i. Review student design projects from ENGR 151

ii. Review programming projects from ENGR 161

iii. Review final papers from ENGR seminar

Students completed group design projects in ENGR 151, individual programming projects in ENGR 161, and a final paper in the ENGR seminar course. These projects were successfully completed by students, and particularly the ENGR seminar paper revealed a new-found respect and understanding of professional obligations and ethics in engineering. Curricular developments will continue to focus on development of these skills in additional to technical expertise. Course objectives will be reviewed to ensure a focus on skills that will foster retention in engineering and student success.

b. Student transfer objectives: Ensure a fluid transfer of individual courses and pre-requisites so that students can begin taking 2nd year engineering courses immediately upon transfer

i. Exit surveys (upon transfer from UAS to an engineering BS program, and upon completion of their first year post-UAS) with a focus on preparedness, course transfer and course sequencing

Email surveys were sent to the four students who transferred to B.S. Engineering programs. Two responses were received. Both indicated feeling well prepared for most of their courses and had no transfer credit issues. One student did indicate that he did not feel prepared for his thermodynamics course. This student was allowed to register for this course at UAF without meeting the pre-

requisite physics course. This student did not complete the science requirement (chemistry or physics) at UAS. This highlights the importance of students completing a full year of science as part of the pre-engineering program studies.

ii. Annual meeting with UAA and UAF faculty to discuss areas of concern with respect to academic preparedness and course transfers specific to UAS transfer students.

Follow-up with UAF Civil Engineering program has been requested, but not yet received. A statewide engineering group should be developed to discuss pre-engineering and other statewide engineering education issues.