## Notes on Utilizing Alumni Surveys for Assessment G. F. Jones October 30, 2015

## 1. Background:

- a. Engineering began using these instruments in the late 1990's
- b. ABET, our accreditation agency, required several new things in their new outcomes-base accreditation
  - i. Define student outcomes (skills/characteristics at graduation time)
    - 1. an ability to apply knowledge of mathematics, science, and engineering
    - 2. an ability to design and conduct experiments, as well as to analyze and interpret data
    - 3. an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
    - 4. an ability to function on multi-disciplinary teams
    - 5. an ability to identify, formulate, and solve engineering problems
    - 6. an understanding of professional and ethical responsibility
    - 7. an ability to communicate effectively
    - 8. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
    - 9. a recognition of the need for, and an ability to engage in life-long learning
    - 10. a knowledge of contemporary issues
    - 11. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
    - 12. a knowledge of chemistry and calculus-based physics
    - 13. an ability to apply multivariate calculus and differential equations, and a familiarity with statistics and linear algebra, to solve mechanical engineering problems
    - 14. an ability to apply principles of engineering, science and mathematics to the design and realization of physical systems
    - 15. an ability to work professionally in both thermal and mechanical systems
  - ii. Define Program Educational Objectives (characteristics our graduates should have 3-5 years after graduation)
    - 1. be valued members of their organizations because of their skills and abilities as mechanical engineers;
    - 2. solve complex technical problems and/or design systems that are useful to society by applying the fundamental

- scientific principles that underpin the mechanical engineering profession;
- 3. advance in their chosen career paths by utilizing technical, leadership, communication, and interpersonal skills with the highest ethical standards;
- 4. apply their knowledge and skills to successfully practice professions of their choice;
- 5. demonstrate professional and personal growth by pursuing or successfully completing an advanced degree, professional development courses, and/or engineering certification:
- 6. be actively engaged in service to their professions and communities, consistent with the tradition of St. Augustine.
- c. Outcomes were assessed generally using graded student work
- d. Objectives needed to be evaluated using employers and alumni
  - i. We ran employer focus groups to get their input on our graduates, but this was insufficient since they were more passive observers than our alums were
  - ii. We needed to do alumni surveys to determine things like, how many were pursuing advanced degrees, gained certificates, to what extent were they being professionally engaged, etc.
  - iii. We surveyed alums for years 3, 4, and 5 after graduation two times in a 6-year cycle.

## 2. Effectiveness

- a. Not so much
- b. Only 20-25% return rates, small sample sizes means statistically uncertain results in some cases.
- c. We did collect some meaningful data, and the process and data satisfied ABET. We met our target in all cases.
- d. However, other than an alumni focus group, which might be more challenging to execute, we had little choice.
- e. Side note: ABET has since moved away from requiring that we evaluate the effectiveness of PEOs. Now, they simply require that we get approval from all of our constituencies that the set of PEOs is reasonable and on target. One of our constituencies is our alums along with employers, the department, parents, department advisory committee, etc.

## 3. Other upsides and downsides

- a. Alumni surveys give us a way to stay in touch with our graduates
  - i. Engaging them for return to campus to meet/speak with students (we always get requests like this and it is sometimes a challenge to satisfy the alum's request to help)
  - ii. Possibly begin cultivation for development. Some alums start their own businesses right after graduation and start to make serious money.

- iii. Can possibly fit alum survey into other engagements you might have with the alums, say an annual dinner or awards ceremony, etc.
- b. A downside is that some alums are turned off when being asked to complete long surveys. A disgruntled alum is not some we strive for.