Accreditation, Assessment, and ABET

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Outline

• Provide overview of accreditation process
• Program objectives
• Program educational outcomes
• Vision, Mission, and Constituencies
• Assessment
• Solicit input (survey)
In the Past

- Engineering programs accredited by Accreditation Board for Engineering and Technology (ABET)
- Computer science programs accredited by Computer Science Accreditation Board (CSAB)
- Accreditation mostly bean-counting exercise
CSAB and ABET merged (ABET now stands for ABET!)
- Engineering programs accredited by Engineering Accreditation Commission (EAC) of ABET
- Computer science programs accredited by Computing Accreditation Commission (CAC) of ABET

Site visit every six years

Accreditation mix of bean-counting and continuous assessment processes

Minor difference between EAC and CAC requirements (will discuss CAC requirements)
Criteria for Accrediting Computing Programs

Non-bean counting:

1. **Objectives, Outcomes, Assessment**

Bean counting:

2. Student Support
3. Faculty Qualifications
4. Faculty Size and Workload
5. Curriculum
6. Technology Infrastructure
7. Institutional Support and Financial Resources
Outcomes and Objectives

Objectives: Broad statements that describe career and professional accomplishments that program is preparing student to achieve.

Outcomes: Narrower statements that describe what students are expected to know and be able to do by graduation.

(There are also individual course outcomes that we have developed.)
Objectives

For Bachelors of Science in CS:

1. Our graduates will have professional careers related to computer science or software engineering.
2. Our graduates can adapt to changes in technology as well as to needs of society.
3. Our graduates will continue to seek knowledge to thrive in an increasingly globalized society.
4. Our graduates will have options to pursue careers in industry or academia.
5. Our graduates communicate effectively.
6. Our graduates can be team members or team leaders.
Outcomes ("a-through-i")

For Bachelors of Science in CS, students have (as dictated by ABET):

(a). Ability to apply knowledge of computing and mathematics appropriate to discipline. In particular, students should be able to apply this knowledge in a way that demonstrates comprehension of tradeoffs involved in modeling, design and development of software systems of various scales and complexity

(b). Ability to analyze a problem, and identify and define computing requirements appropriate to its solution

(c). Ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs

(d). Ability to function effectively on teams to accomplish common goal

= broader outcome; harder to assess
Outcomes (cont.)

(e). Understanding of professional, ethical, legal, security, and social issues and responsibilities

(f). Ability to communicate effectively

(g). Ability to analyze local and global impact of computing on individuals, organizations, and society

(h). Recognition of need for, and an ability to engage in, lifelong learning

(i). Ability to use current techniques, skills, and tools necessary for computing practice

For engineering there are “a-through-k” outcomes.

= broader outcome; harder to assess
Vision, Mission, & Constituents

At higher level than outcomes and objectives are vision and mission statements and constituents.

**Vision**: To be national leader providing experience-enhanced education and conducting interdisciplinary research in engineering and computing.

**Educational Mission**: Educate graduates for professional leadership, civic influence, and lifelong learning. Provide education based on theoretical, experimental, and ethical foundation and enhanced by opportunities for participation in research, internships, international studies, interdisciplinary programs, or programs in entrepreneurship.
Mission Statements (cont.)

Research Mission: Conduct research and develop technology to address present and future societal problems. Advance state-of-the-art in areas incorporating technical disciplines from electrical engineering and computer science. Collaborate with researchers from other disciplines to address societal grand challenge problems.

Outreach Mission: Serve community and profession by participating in activities designed to improve and preserve body of knowledge in engineering and computing. Participate in service that advances engineering and computing education. Transfer research results to communities, nation, and world to increase economic equity, quality of life, and ecological sustainability.
Constituents: The School has identified its constituencies as the employers who hire its students and the School’s faculty. Additional constituency input comes in the form of the institutional mission of WSU, which reflects the interests of Washington’s citizens.
Most significant ABET requirement:

“Program uses a documented process incorporating relevant data to regularly assess its educational objectives and outcomes and to evaluate extent to which they are being met.

“The results of evaluations are used to develop and implement plans to **effect continuous improvement of the program.**”

Note: Arguably always have effected continuous improvement of program! However, must document process, collect data, implement changes, measure effects, etc.
Assessment of Objectives

Tools for assessing objectives:

- Alumni surveys
- Feedback from industry recruiters
- Feedback from IAB members
- (Input from faculty)
Objectives Assessment Process

Alumni Survey → Curriculum Committee
IAB Input → Curriculum Committee
Recruiter Comments → Curriculum Committee

Curriculum Committee → Objectives Assessment Committee

Objectives Assessment → Approved Objectives
Approved Objectives → Faculty

Faculty → School Assessment Committee
School Assessment Committee → University & ABET Requirements
University & ABET Requirements → Objectives Assessment Committee

Educational Objectives
Assessment of Outcomes

Tools for assessing outcomes:

- Faculty via course assessment reports
- Feedback from IAB members
- WSU Writing Portfolio
- Curricular Debriefs
- Alumni surveys
- Exit interviews
Feedback?

Always free to contact me: schneidj@eecs.wsu.edu

Assessment documents are on-line:
  URL: abet.eecs.wsu.edu
  username: abet
  password: a-2-k-and-more

Comments?

⇒ Surveys (one per program)