

ABET: An Example of an Outcome Oriented Accreditation System in the U.S.

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2007 International Conference on Learning Outcomes
Zurich, 3-4 September 2007

Overview

- What is ABET?
- Transition to Outcomes Approach
- Over-arching Expectations
- Current Results/Impact Data
- Continuing Refinement

ABET

- Primary organization responsible for monitoring, evaluating, and certifying the quality of engineering, engineering technology, computing and applied science education in the United States
- Federation of 31 technical and professional societies representing over 1.8 million practicing professionals

ABET Governance

ABET Board

Engineering
Accreditation
Commission

1787
accredited
programs at
364
institutions

Technology
Accreditation
Commission

670
accredited
programs at
226
institutions

Applied
Science
Accreditation
Commission

71 accredited
programs at
54
institutions

Computing
Accreditation
Commission

261
accredited
programs at
220
institutions

Accreditation Council

- Chair (Serves 2 year term)
- Chair, Chair-Elect, and Past-Chair of each of the four commissions
- Four adjunct accreditation directors
- ABET HQ Staff members (2)
- Coordination and Harmonization of Policies, Procedures, and Criteria

Engineering Accreditation Commission

Chair

Executive Committee
(4 Officers - 6 At-Large Members-1 Board Liaison (ex-officio))

AAEE	2
ACSM	1
AIAA	2
AICHe	4

ANS	2
ASABE	2
ASCE	6
ASEE	1
ASHRAE	1

ASME	7
BMES	2
CSAB	1
IEEE	6
IIE	4
NCEES	1
NICE	1

NSPE	1
SAE	1
SME	2
SME-AIME	2
SNAME	1
SPE	2
TMS	2

4 Officers; 6 At-Large Members
1 Board Liaison; 1 Public Member
55 Members, representing 23 Societies

ABET Organizational Structure

- Small professional staff
- Volunteer Board and Commissions
- 29 ABET Board of Directors members were academics and 20 were practicing professionals (2005-2006)
- 43 EAC members were academics and 24 were practicing professionals (2005-2006)
- Represent Stakeholder Member Societies

Objectives of Accreditation

- (1) Assure that graduates of an accredited program are adequately prepared to enter and continue the practice of the profession
- (2) Stimulate improvement of technical education
- (3) Encourage new and innovative approaches to technical education and its assessment
- (4) Identify accredited programs to the public

Transition from Requirements to Outcomes

- 1991 ABET President John Prados Report to ABET Board of Directors
- 1992 Establishment of the ABET Accreditation Process Review Committee
- Vision for Change (1995 Report of the APRC)
- 1996 Engineering Criteria 2000
- 1996-2000 Pilot and Transitional Visits
- TAC, ASAC, and CAC Transition Followed

Criteria Creation and Modification

- Primary constituencies – Industry, Program Faculty, Academic Administration, Professional Societies
- Proposed change is recommended by a commission
- Approved by ABET BOD for comment
- Comment from any interested party
- Modification/final approval by ABET BOD

Philosophy

- Institutions and Programs define mission and objectives to meet the needs of their constituents -- enable program differentiation
- Emphasis on outcomes -- preparation for professional practice
- Programs demonstrate how criteria and educational objectives are being met
- Programmatic diversity is a strength of U.S. technical education
- ABET accredits programs – Does not certify individuals

Overarching Expectations

- Adequate preparation for entry into a professional career
- Holistic program outcomes focus rather than requirements focus
- Adequate processes leading to continuous program improvement

Current EAC Criteria

1. Students
2. Program Educational Objectives
3. Program Outcomes and Assessment
4. Professional Component
5. Faculty
6. Facilities
7. Institutional Support & Financial Resources
8. Program Criteria

Engineering Program Outcomes

- a) Apply math, science, engineering
- b) Design and conduct experiments
- c) Design with realistic constraints
- d) Function on multi-disc. teams
- e) Identify, formulate, solve engr. probs.
- f) Professional and ethical responsibility
- g) Communicate effectively

Outcomes Continued

- h) Global, economic, environmental and societal context
- i) Life-long learning
- j) Contemporary issues
- k) Techniques, skills, modern engineering tools

EAC Expectations are Being Met

- Significant effort by programs
- Continuing agreement on outcomes approach
- ABET CQI suggests outcomes approach is working
- Sustainability is an issue
- ABET is implementing improved approaches to volunteer selection, evaluation, and training

EAC General Review Results

	2005-2006 (318 Progs.)	1999-2000
NGR	65%	66%
IR	26%	22%
IV	9%	11%
SC	0%	1%
NA	0.3%	1%

Engineering Change:

A Study of the Impact of EC2000

- Study by the Center for the Study of Higher Education at Penn State Univ.
- Funded by ABET to assess implementation impact of EC2000
- Survey of all primary constituencies
 - Programs, Faculty, Engineering Deans
 - 1994 Graduates; 2004 Graduates
 - Employers
- Study available at www.abet.org

Key Findings

- Greater emphasis on professional skills and active learning
- High levels of faculty support for CQI
- 2004 graduates better prepared than 1994
- Professional skills gained; technical skills maintained
- National employers see more improvement than local employers
- EC2000 outcomes continue to be important

Current Initiatives

- Continuing Internal ABET CQI Processes
 - Internal assessment, criteria, policies, processes
- Volunteers and Leadership
 - Recruitment, training, performance evaluation, development
- Harmonization Across Commissions
 - Criteria, policies, processes
- International Engagement

Criteria Alignment

- Currently four commission specific sets of criteria
- All commissions are moving to 9 commonly numbered and named criteria
- 7 of the 9 are quite similar in intent across all commissions

Renumbered Criteria

(Currently in Review and Comment Process)

1. Students
2. Program Educational Objectives
3. Program Outcomes
4. Continuous Improvement
5. Curriculum
6. Faculty
7. Facilities
8. Support
9. Program Criteria

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More Information

www.abet.org