Introduction to ABET Accreditation

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ACOFI
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Topics

- Who is ABET?
- How is ABET organized?
- Where does ABET accredit?
- The Value of Accreditation
- Basics of Accreditation
- ABET Criteria: the guiding principles of accreditation decisions
- Accreditation process

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ABET Essentials

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ABET is a Program Accreditor

Also called “Specialized” Accreditor

- Not-for-profit organization
- Evaluates academic programs
  - **Not** Institutions, degrees, or courses
  - AS, BS, MS levels
- Ensure programs are relevant, technically strong
  - Technical and professional skills
- Peer review process
  - Volunteers from ABET’s technical societies
- Quality assurance
  - Ensures quality of educational experience
  - Graduates ready to enter “the profession”

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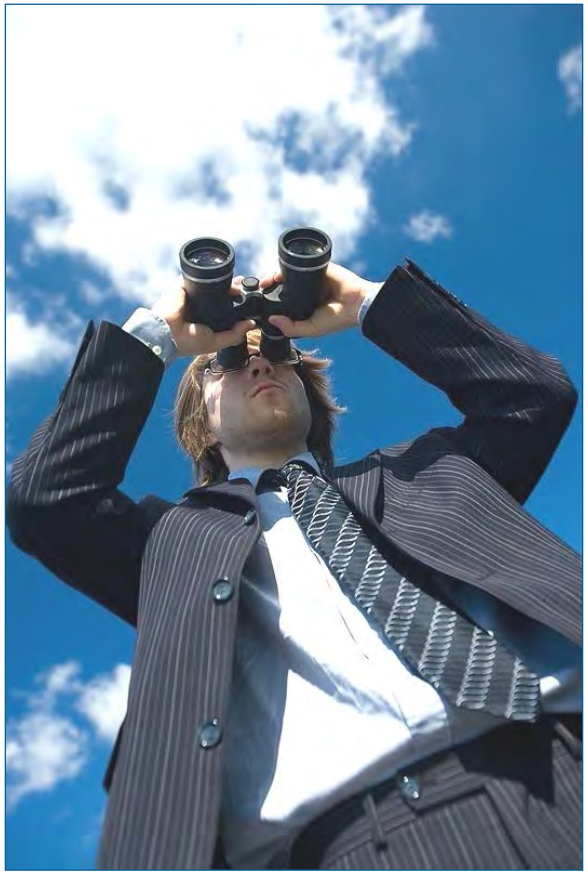
ABET Vision

Provide **world leadership** in **assuring quality** and in **stimulating innovation** in

- Applied Science
- Computing
- Engineering, and
- Engineering Technology Education



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ABET Mission

- ABET serves the public globally through the promotion and advancement of education in applied science, computing, engineering, and engineering technology

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ABET's 33 Member Societies

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ABET Member Societies

- Represent “the Profession”
  - Over 1.5 million individual members
- Develop Program Criteria
- Provide Volunteers
  - Nominate Board Members
  - Nominate Commissioners (Team Chairs)
  - Recruit and Assign Program Evaluators
- Volunteers **not** financially compensated

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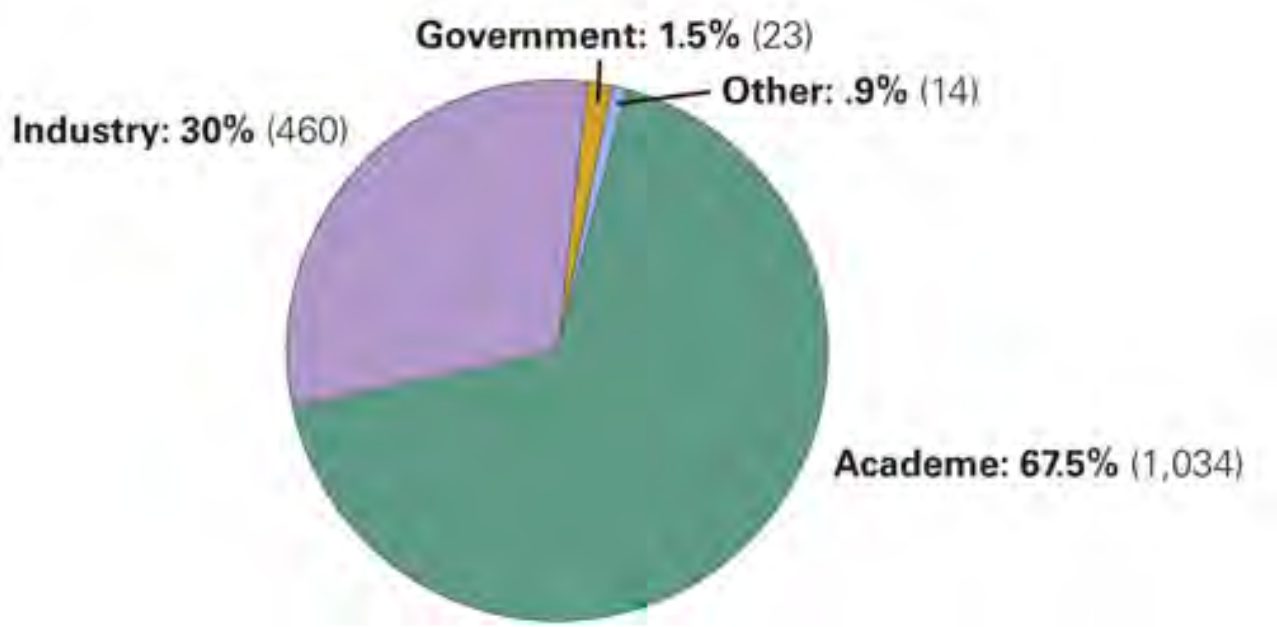
ABET Experts

- Academe, Industry, Government



ABET Experts

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Organizational Structure

2,200+ ABET Experts

Board of Directors

- Nominated by member societies
- Provide strategic direction and plans
- Decide policy and procedures
- Approve criteria

4 Commissions

- ASAC, CAC, EAC, ETAC
- Make decisions on accreditation status
- Implement accreditation policies
- Propose changes to criteria

Program Evaluators

- Visit campuses
- Evaluate individual programs
- Make initial accreditation recommendations
- “Face of ABET”

100% of accreditation decisions are made by ABET Experts, not Headquarters Staff

ABET Headquarters (Baltimore): ~40 full, part time staff

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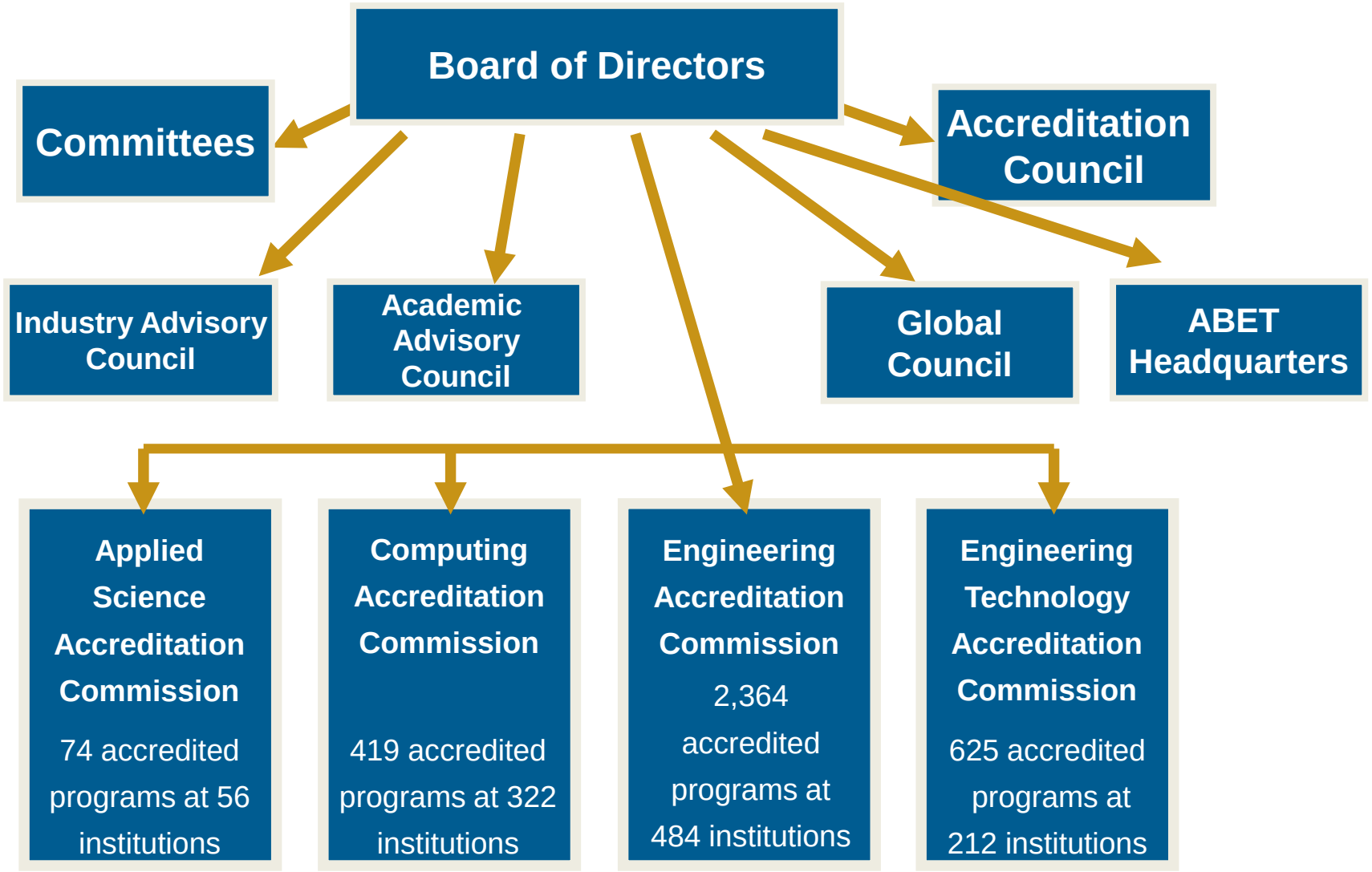
ABET Organizational Structure



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ABET Accreditation Statistics

As of 1 October 2014

- Accredited programs by commission:

  ASAC: 74 CAC: 419

  EAC: 2364 ETAC: 625

Commission	Within U.S.		Outside the U.S.	
	Programs	Institutions	Programs	Institutions
ASAC	73	55	1	1
CAC	370	289	49	33
EAC	2037	416	327	68
ETAC	580	214	45	11

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Where does ABET Accredit?

ABET's Global Activities

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Global Accreditation Activities

As of 1 October 2014

- Accredited **3,466** programs at **698** colleges & universities in **28** countries
- Non-U.S. Programs
  - Accredited **420** programs at **87** institutions in **27** countries
  - Uniform accreditation criteria, policies and procedures used for all visits, regardless of location

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ABET Accredited Programs

- Bahrain
- Chile
- **China**
- Colombia
- **Ecuador**
- Egypt
- India
- Indonesia
- Jordan
- Kazakhstan
- Kuwait
- Lebanon
- Mexico
- Morocco
- Oman
- **Palestine**
- Peru
- Philippines
- Qatar
- **Russian Federation**
- Saudi Arabia
- Singapore
- South Africa
- Spain
- Turkey
- UAE
- USA
- Vietnam

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ABET is Engaged Globally

Consistent with ABET's Mission & Vision

- Assistance: MOUs with 16 national agencies
- Mutual Recognition Agreements
  - Engineers Canada
  - Seoul Accord: Computing
  - International Engineering Alliance (IEA)
    - Washington Accord: Engineering
    - Sydney Accord: Engineering Technology
    - Dublin Accord: Engineering Technician
- Membership in Global Organizations
  - Global Engineering Deans Council (GEDC)
  - Intl Federation of Engr Education Societies (IFEES)

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ABET: a Leader in Assessment

Educational Research

- Educational Research
  - Partners with faculty and industry
    - Assessment methods; measuring professional skills
    - Advisory Boards
  - Partners with other leading organizations
    - Engineers Without Borders
    - National Science Foundation

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Value of Accreditation

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Value to Industry

- Ensures educational requirements to enter “the profession” are met
- Aids industry in recruiting
  - Ensures “baseline” of educational experience
- Enhances mobility
  - Global workforce
- Opportunity to help guide the educational process
  - Program’s Industrial Advisory Groups
  - Professional, technical societies

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Value to Institutions

- “Third party” confirmation of quality of programs
- International status
- Recognition by “the profession”
- Helps attract the strongest students

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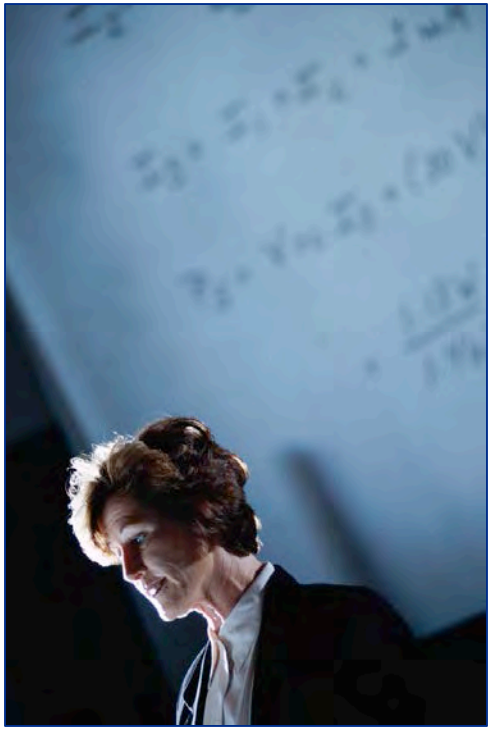
Value to Faculty

- Encourages “best practices” in education
- Structured mechanisms for self-improvement
- Institution is serious and committed to improving quality
  - Focus on student outcomes
  - Facilities, financial resources, training, etc.



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Value to Students

- Helps students select quality programs
- Shows institution is committed to improving the educational experience
- Helps students prepare to "the profession"
- Enhances employment opportunities

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Basics of ABET Accreditation

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Generally Accepted Accreditation Principles

- Non-governmental organization conducts accreditation (ABET)
- Accreditation is **voluntary**
- Fair and impartial process
- Requires self-assessment by the program and institution
- Continuous process (comprehensive reviews required every 5-10 years)

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Generally Accepted Accreditation Principles

- Fair and impartial peer-review process
  - Professional practitioners, educators on review teams
  - Uniform accreditation criteria, policies and procedures used for all visits, regardless of location
- Failure to meet a single standard results in loss of accreditation
  - Deficiencies in one area CANNOT be compensated by strengths in other areas
- Accredited programs meet the standards, but are not ranked

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Evolution of ABET Accreditation

- Philosophical Shift
  - "Inputs-based" to "outcomes-based"
- Outcomes-based
  - Institutions and programs define mission and objectives to meet needs of their constituents
    - Provides for program differentiation
  - Outcomes: preparation for professional practice
  - Programs demonstrate how criteria and educational objectives are being met
  - Wide national & international acceptance

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Programs Must:

- Have graduates
- Be offered by institutions with appropriate accreditation or governmental approval
  - Outside the USA
    - Appropriate entity that authorizes/approves the offering of educational programs
- Programs must be in compliance with the **criteria** and ABET's **policies and procedures**

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Underlying Principle

- The process of accreditation is ***evidence-based*** and should drive decision-making to ensure excellence and enhance innovation in technical education.
- Evaluation centers on the ***evidence*** provided that supports achievement of each of the criterion
- Majority of evidence collected through **assessment** of student learning

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Assessment

- The **systematic** collection, review, and use of information about educational programs undertaken for the purpose of **improving student learning and development**
- Integral to determining how well your program is meeting objectives
- Evidence collected through assessment used in:
  - Self-Study Report
  - Continuous Improvement Process

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Assessment

- Effective assessment **uses relevant direct, indirect, quantitative and qualitative measures** as appropriate to the outcome or objective being measured
- Methods for gathering data include
  - Surveys
  - Exit Interviews
  - Focus Groups

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Continuous Quality Improvement (CQI)

- ABET Criteria have been developed on the principles of continuous quality improvement
- On-going process to improve quality of student's educational experience
  - Systematic process: documented, repeatable
  - Assess performance against criteria
  - Take actions to improve program
- Accreditation is a **part** of CQI
  - Verification that program meets certain level of quality, and CQI is part of the quality process

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What Does This Mean?

- An educational program CQI process should involve a clear understanding of:
  - Mission
  - Constituents
  - Objectives (what one is trying to achieve)
  - Outcomes (learning that takes place to meet objectives)
  - Processes (internal practices to achieve the outcome)
  - Facts (data collection)
  - Evaluation (interpretation of facts)
  - Action (change, improvement)

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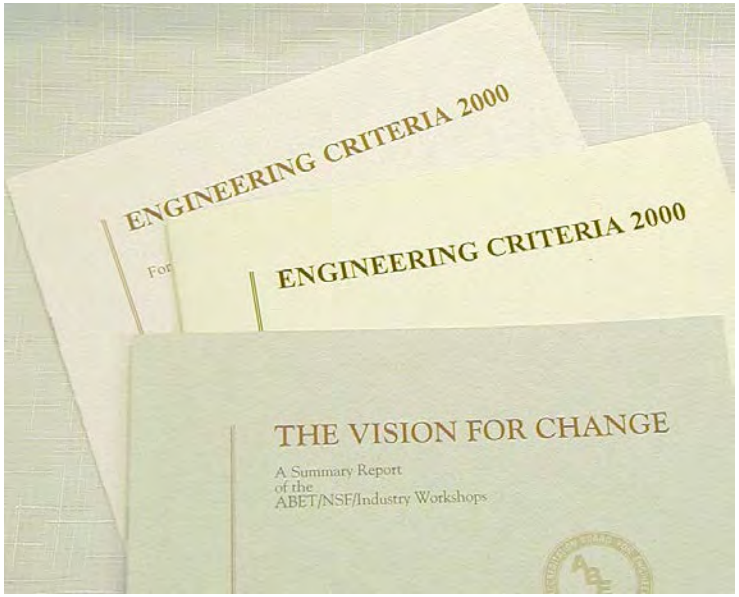
The Guiding Principles of Accreditation Decisions



ABET Criteria

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Overview of Criteria

- The criteria are intended to:
  - Assure the quality of educational programs
  - Foster the systematic pursuit of quality improvement in educational programs
  - Help develop educational programs that satisfy the needs of constituencies in a dynamic and competitive environment
- Responsibility of the institution seeking accreditation to demonstrate clearly that the program meets the criteria.

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ABET Criteria

- Different for each commission
  - ASAC – Applied Sciences
  - CAC – Computing
  - EAC – Engineering
  - ETAC – Engineering Technology
- Criteria “Harmonization”
  - Common to all commissions
  - Criterion 1,2,4,7,8
- Annual revisions typical
  - Normally minor changes

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ABET Criteria

1) Students
2) Program Educational Objectives
3) Student Outcomes
4) Continuous Improvement
5) Curriculum
6) Faculty
7) Facilities
8) Support

Program Criteria

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Criterion 1: Students

- The quality and performance of students and graduates is an important success factor
- To determine success, the institution must **evaluate, advise,** and **monitor** students
- Policies and procedures must be in place and enforced for acceptance of transfer students and validation of courses taken elsewhere
- Ensure that all students meet all program graduation requirements

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Criterion 2: Program Educational Objectives

- The program must have published program educational objectives that are consistent with the mission of the institution, the needs of the program's various constituencies, and these criteria. There must be a documented, systematically utilized, and effective process, involving program constituencies, for the periodic review of these program educational objectives that ensures they remain consistent with the institutional mission, the program's constituents' needs, and these criteria.

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Criterion 3:
Student Outcomes

- The program must have documented student outcomes that prepare graduates to attain the program educational objectives.
  - Student outcomes describe what students are expected to know and be able to do by the time of graduation. These relate to the skills, knowledge, and behaviors that students acquire as they progress through the program.

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Criterion 3:
EAC Student Outcomes

- The program **must demonstrate that** their students attain the following outcomes:
  a) An ability to apply knowledge of mathematics, science, and engineering
  b) An ability to design and conduct experiments, as well as to analyze and interpret data
  c) 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.

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Criterion 3:
EAC Student Outcomes (cont.)

d) An ability to function on multidisciplinary teams
e) An ability to identify, formulate, and solve engineering problems
f) An understanding of professional and ethical responsibility
g) An ability to communicate effectively
h) The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context

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Criterion 3:
EAC Student Outcomes (cont.)

i) A recognition of the need for, and an ability to engage in life-long learning

j) A knowledge of contemporary issues

k) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

- Plus any additional outcomes that may be articulated by the program

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Criterion 4: Continuous Improvement

- The program must regularly use appropriate, documented processes for assessing and evaluating the extent to which the student outcomes are being attained. The results of these evaluations must be systematically utilized as input for the continuous improvement of the program. Other available information may also be used to assist in the continuous improvement of the program.

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Criterion 5: Curriculum (EAC)

- Faculty must ensure that the curriculum devotes adequate attention and time to each component, consistent with the outcomes and objectives of the program and institution.
  - One year of a combination of college-level mathematics and basic sciences appropriate to the discipline
  - One and one-half years of engineering topics, consisting of engineering sciences and engineering design appropriate to the student's field of study

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Criterion 5: Curriculum (EAC)

- General education component that complements the technical content and is consistent with program and institutional objectives
- Students prepared for engineering practice through curriculum culminating in a major design experience
  - Based on knowledge and skills acquired in earlier course work
  - Incorporates appropriate engineering standards and multiple realistic constraints

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Criterion 5: Curriculum (CAC)

- Consistent with educational objectives and designed such that each of the program outcomes can be achieved
- Technical and professional requirements:
  - One year of up-to-date coverage of fundamental and advanced topics in the computing discipline associated with the program
  - Mathematics appropriate to the discipline beyond the pre-calculus level
  - Content, expected performance criteria, and place in the overall program published for each course

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Criterion 6: Faculty

- Sufficient number
- Competent to cover all curricular areas of program
- Authority for creation, delivery, evaluation, modification, and continuous improvement of the program

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Criterion 7: Facilities

- Adequate to support attainment of student outcomes
- Provide an atmosphere conducive to learning
- Modern tools, equipment, and computing resources appropriate to the program
  - Accessible, systematically maintained and upgraded
  - Guidance for students in use of equipment
- Library and computing infrastructure to support scholarly and professional activities

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Criterion 8: Support

- Sufficient to attract, retain, and provide for continued professional development of faculty
- Sufficient to acquire, maintain, and operate facilities and equipment appropriate for the program

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Program Criteria

- Each program must satisfy applicable Program Criteria
  - Outcomes
  - Curricular topics
  - Faculty qualifications
- Must satisfy all Program Criteria implied by title of program

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Accreditation Process

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ABET Accreditation Process

What does it involve?

- Apply for ABET program review
  - Coordinated with national authority/accrediting agency
- Programs prepare Self-Study
  - Documents how the program meets criteria
  - Prepared for Program Evaluator and Team Chair
- Program review conducted by team of peer colleagues
  - Review the Self-Study and conduct the site visit
- Follow-on activities
  - Respond to findings, if necessary

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Accreditation Timeline

18-21* month process

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Accreditation Process

Governing Documents

- *ABET Criteria for Accrediting Programs in ___*
  - Program Management
  - Assessment
  - Curriculum
  - Resources and Support
- *ABET Accreditation Policy and Procedure Manual* (referred to as the '*APPM*')
  - Eligibility for Accreditation
  - Conduct of Evaluations
  - Public Release of Information
  - Appeals

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Self-Study Basics and Context

- Presents the program to the evaluation team
- Informs the visiting team of elements of the program as they relate to the criteria
- Affords team its **FIRST IMPRESSION** of the extent to which the program meets the criteria
- Gives an impression of the institution's preparation for the upcoming visit

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Keywords of Importance

- The review is focused on programs, so the applicable terms are applied in the context of programs
- There are four keywords:
  - Deficiency
  - Weakness
  - Concern

  } Terms Indicating Shortcomings

  - Observation – “friendly advice”

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On-Site Visit

- Direct observations by Program Evaluators
  - Tour program facilities
  - Review student work, materials
  - Interview faculty, students, administrators, and other professional supporting personnel
- Complements the Self-Study Report
  - Provides direct, observable evidence that cannot be obtained from the Self-Study Report

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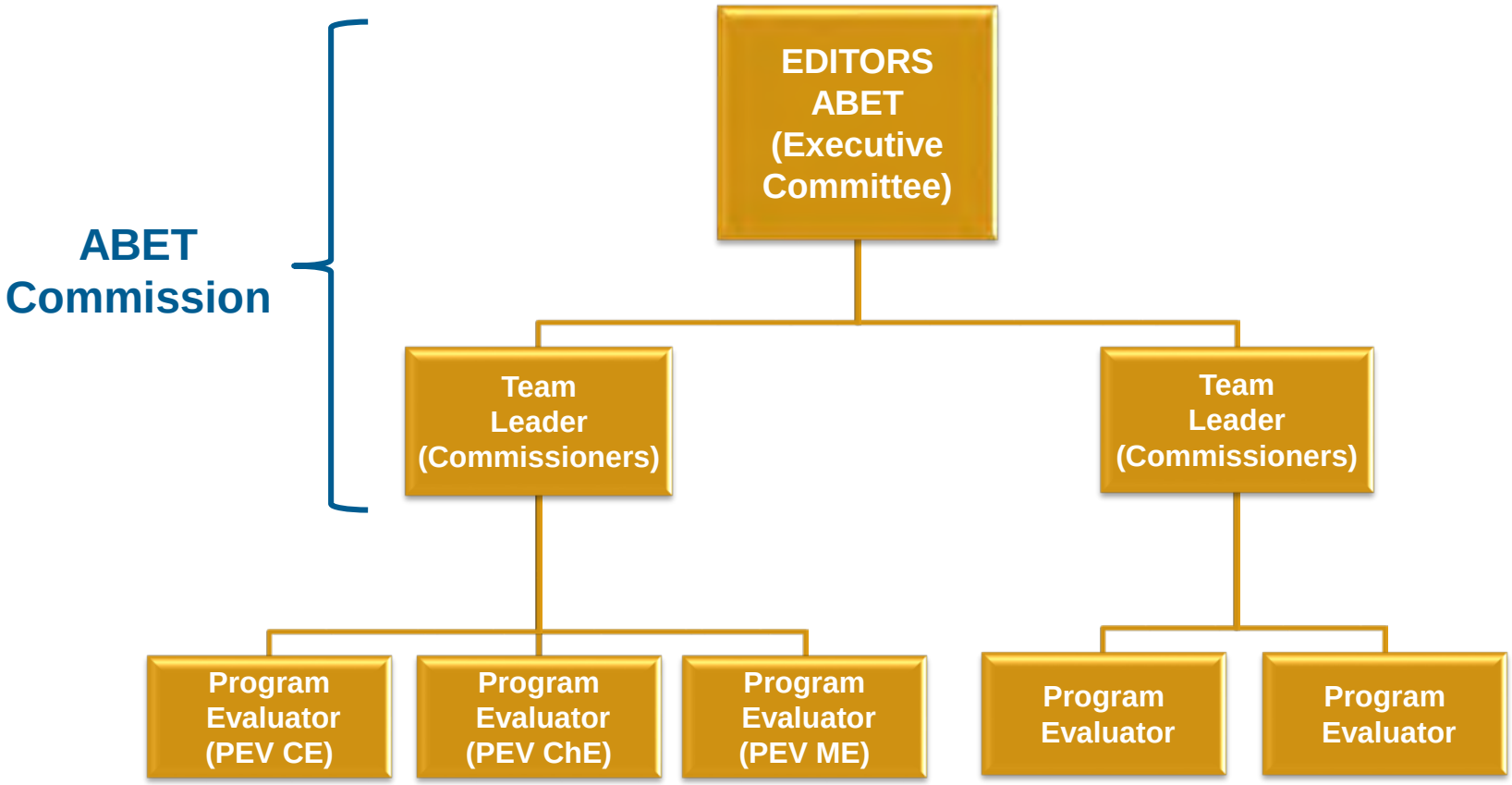
An Accreditation Team



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Accreditation Actions

NGR	Next General Review
IR	Interim Report
IV	Interim Visit
SCV	Show Cause – Visit
SCR	Show Cause – Report
RE	Report Extended
VE	Visit Extended
SE	Show Cause Extended
NA	Not to Accredit

Interim evaluation only

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Accreditation Decisions are Not Always Simple!

- Each institutional context is unique
- ABET strives to ensure consistency
- The overriding goal is to achieve an end result in which programs with similar observed shortcomings are accorded the same actions

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Consistency Checks

- Overall considerations
  - Accreditation actions must be consistent **across all institutions** and **across all programs**
  - Accreditation actions must be consistent with those given for other programs with **similar shortcomings** (weaknesses, deficiencies)
  - Consistency is **checked at five levels** to various degrees of detail

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How We Can Help

Training & Resources

ABET Symposium

- April of each year
- Over 80 Sessions
- Four educational tracks
- Accreditation Track
- Resource Room – Sample Self-Study Reports

ABET Website: www.abet.org

Program Assessment Workshop

- Fundamentals of Program Assessment
- Advanced Program Assessment

Institute for the Development of Excellence in Assessment Leadership (IDEAL)

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ABET Website

www.abet.org

- Resources for programs
- Criteria
- Process & procedures
- Help with assessment
- Webinars
- PEV training, re-training
- International activities
- Newsletters
- Publications
- Accredited programs

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Program Assessment Workshops

- Intensive, interactive workshop
  - One day
  - Develop/refine assessment knowledge
  - Broaden understanding of CQI processes
  - Open enrollment with registration fee
  - Generally 1-3 years before evaluation visit
  - Train 300+ faculty per year
  - Multiple offerings each year, various locations
  - More information at *www.abet.org*

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Program Assessment Workshops

Outcomes

- Identify key elements of functional assessment plan
- Clarify the similarities and differences between course and program assessment
- Put objectives and outcomes to work by developing measurable performance criteria
- Develop scoring rubrics to assess student learning.
- Understand the advantages and disadvantages of various assessment methods
- Create clear and concise reports on assessment and continuous improvement

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IDEAL™

- Institute for the Development of Excellence in Assessment Leadership (IDEAL)
- Focused on **developing assessment leaders**
  - Those responsible for leading their faculty in development and implementation of a program assessment plan
- Not limited to ABET programs, but ABET representatives have priority for attendance
- Four days; offered twice per year
- More info at ***www.abet.org***

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IDEAL™

- Outcomes
  - Immersion in basic program assessment principles (3 days)
  - Basic change management principles: awareness of the challenges of leading change
  - Facilitation skills – how to lead groups and manage the consensus building process

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ABET Symposium

- April 23 – 24, 2015, Atlanta, Georgia
- Four educational tracks
  - Program Assessment
  - Preparing for Accreditation
  - Global Competence in Technical Education
  - Program Evaluator Development
- Self-Study Room
  - Review sample Self-Study Reports
- Pre/Post-Symposium Workshops

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Questions?

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Thank you for your participation!

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