



INTRODUCTION TO ABET ACCREDITATION

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ABET Executive Director

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Topics

- Who is ABET?
- The Value of Accreditation
- Where does ABET Accredite?
- Basics of Accreditation
- ABET Criteria
- Accreditation Process
- Resources

Who is ABET?



ABET Essentials

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 – ABET Focus
 - Ensures quality of educational experience
 - Graduates ready to enter “the profession”

ABET Vision

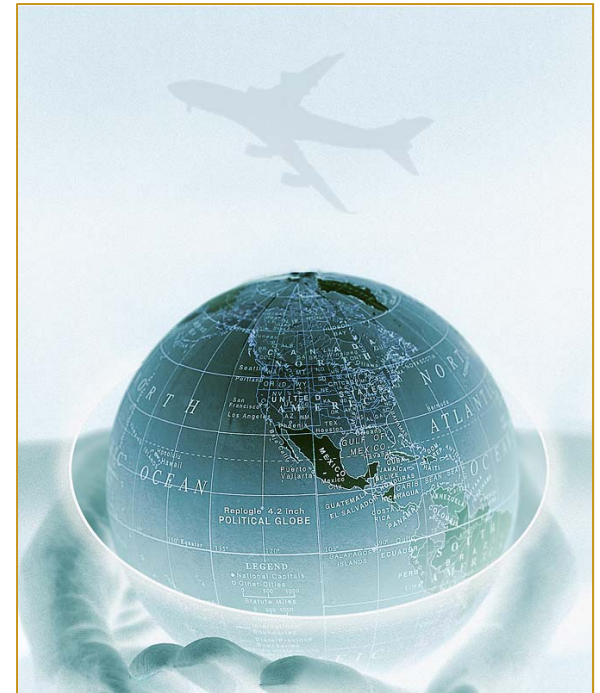


Provide **world leadership**
in **assuring quality** and in
stimulating innovation in

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

ABET Mission

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



Brief ABET History

- 1932** Engineers Council for Professional Development (ECPD) formed
- 1936** ECPD first evaluated engineering degree programs
- 1980** Name changed to “Accreditation Board for Engineering and Technology” (ABET)
- 1980** Mutual Recognition Agreement (MRA) signed with Canada
- 1989** Washington Accord Agreement signed: Canada, UK, Ireland, Australia, NZ
- 1995** Major criteria reform (Engineering Criteria 2000)
- 1998** CSAB (computing accreditation) integrated into ABET
- 2007** **Accreditation of programs outside the U.S. began**
- 2011** IFEEES, GEDC Membership

ABET Organizational Design

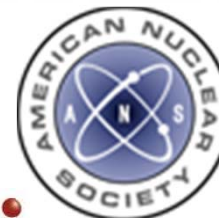
- ABET is a **federation** of 33 professional engineering and technical societies
- ABET relies on the services of almost 2,200 volunteers supported by 33 full-time and seven part-time staff
- ABET Board approves accreditation policy and criteria
- ABET Commissions decide on accreditation actions and implement accreditation policy



National Institute of
Ceramic Engineers
(NICE)



ABET's 33 Member Societies



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 (PEVs) from academe, industry, government
- Volunteers **not** financially compensated

ABET Organizational Structure

Volunteer-Driven: *2,200+ Volunteers*

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

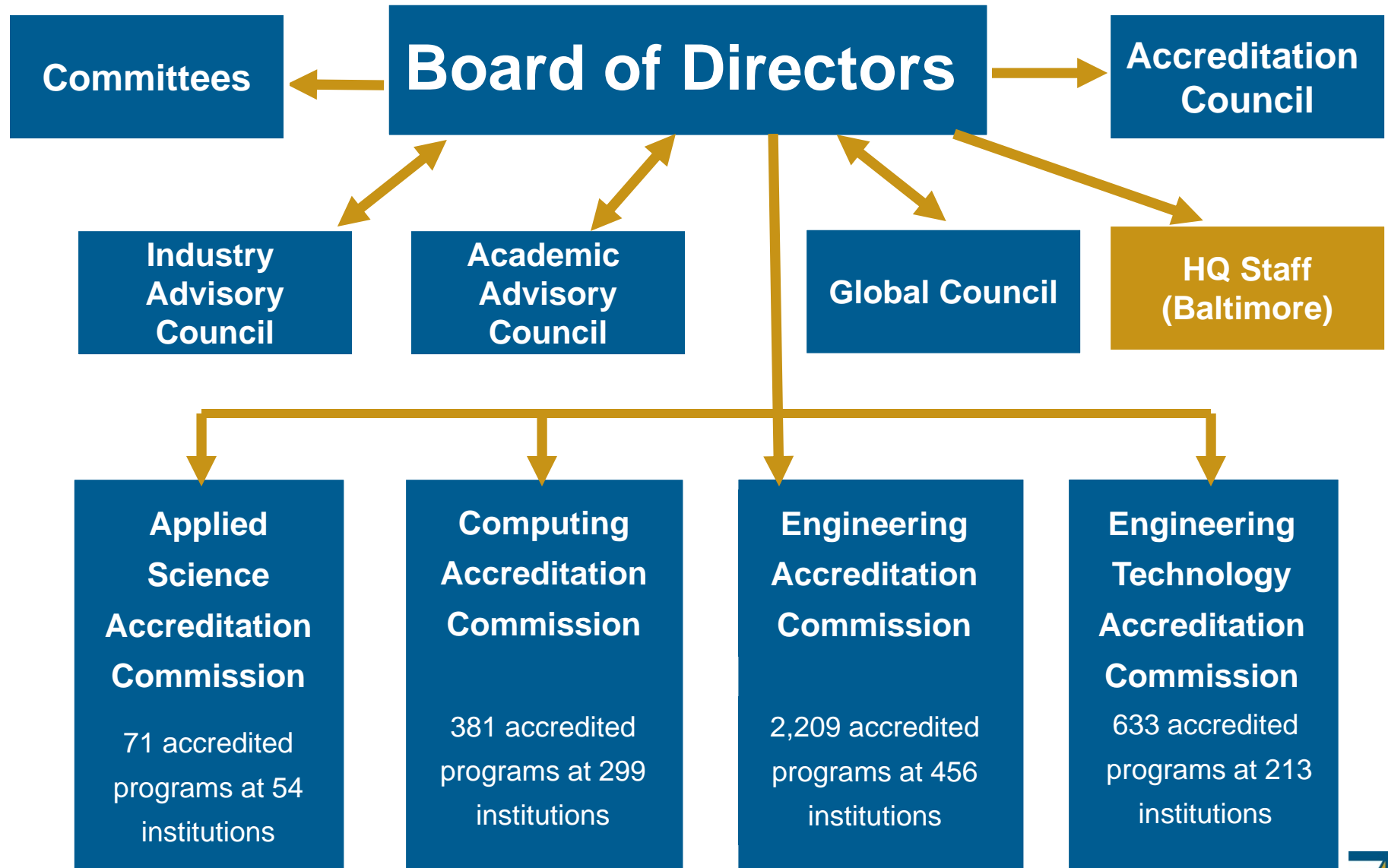
Program Evaluators

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

100% of accreditation decisions are made by Volunteers

ABET Headquarters (Baltimore): ~38 full, part time staff

ABET Organizational Structure



Board of Directors

- Establishes organizational policies and direction
- Approves
 - Accreditation criteria
 - Overarching accreditation policies
- Adjudicates appeals regarding denial for accreditation

Accreditation Commissions

- Applied Science (ASAC), Computing (CAC), Engineering (EAC), Engineering Technology (ETAC)
- Evaluate academic programs
- Make decisions on accreditation actions
- Recommend changes in the criteria
- “Commissioners” are members of ABET’s professional and technical societies
- Act as Team Chairs during evaluation visits



Value of Accreditation

Why Accreditation Matters



- Demonstrates that a collegiate program meets threshold standards to produce graduates ready to enter the profession

Value to Students

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



Value to Industry

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



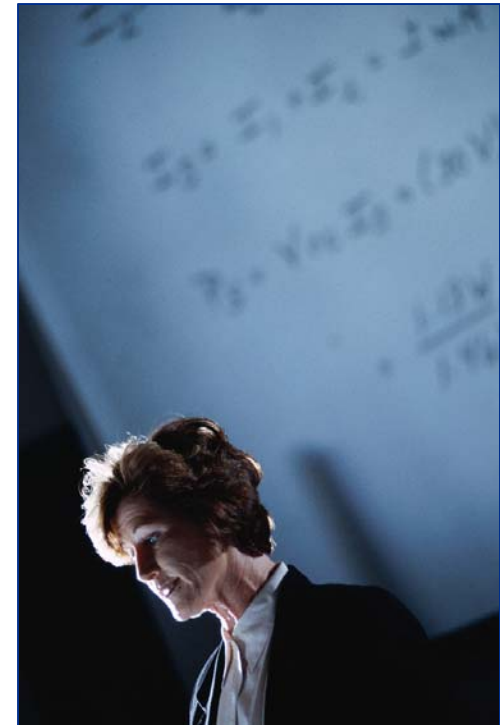
Value to Institutions

- “Third party” confirmation of quality of programs
- International Status: ABET accredited programs recognized globally
 - Commitment to quality education
- Helps attract the strongest students and faculty
- Acceptability of transfer credits
- Some external funding depends on accreditation status



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.



Where does ABET Accredit?



ABET's Global Activities

Why a Global Focus for ABET?

- Global Education
 - International Students
 - Global Institutions
 - Growth of (global) Distance Learning
- Global Business
 - Global technical professionals
- Developing Nations & Economies
 - Rapid growth in technical capacity building



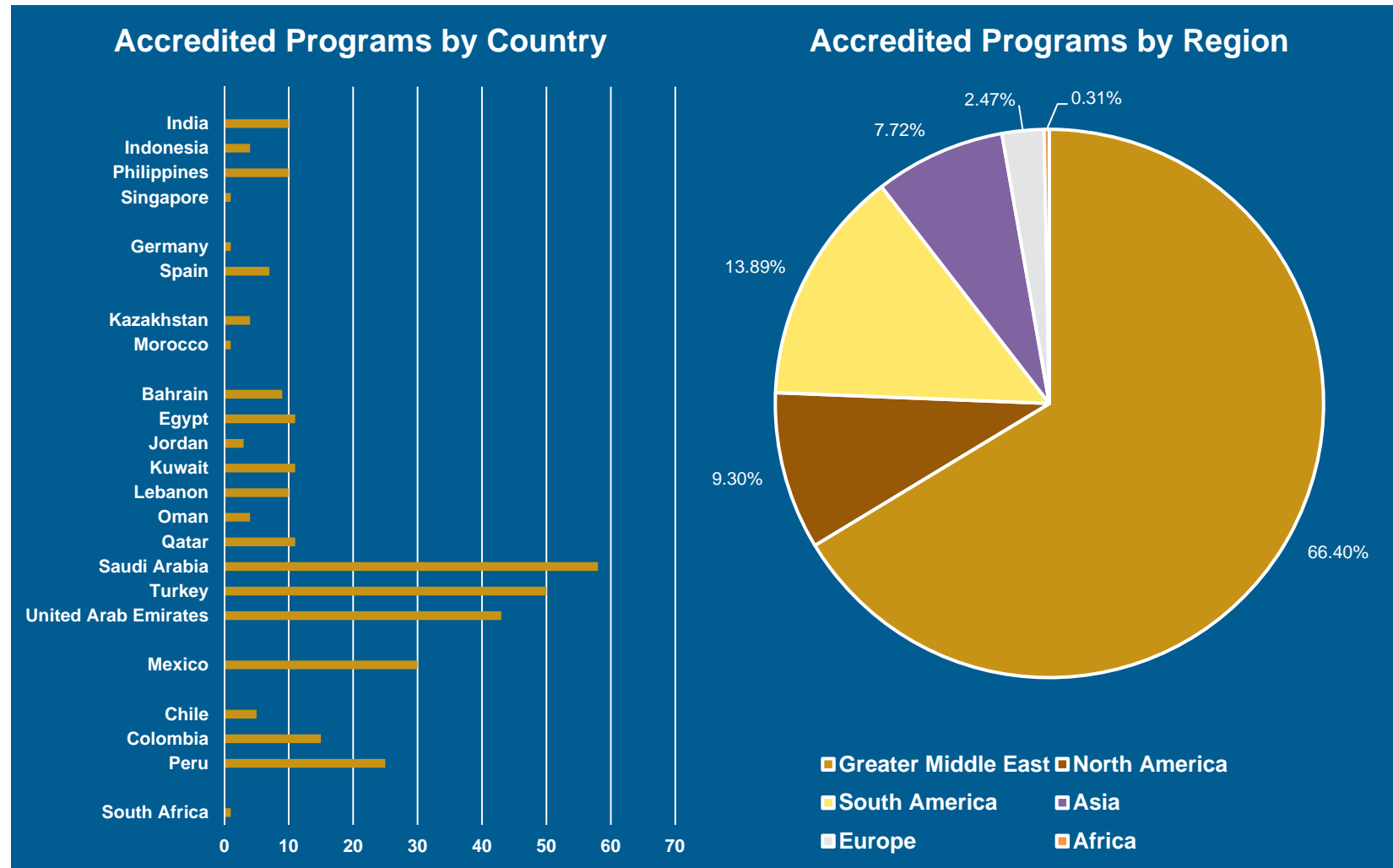
Global Accreditation Activities

As of 1 October 2012

- Accredited **3,294** programs at **659** colleges & universities in **24** countries
- Non-U.S. Programs
 - Accredited **324** programs at **64** institutions in **23** countries
 - Uniform accreditation criteria, policies and procedures used for all visits, regardless of location

Trends in Non-U.S. Accreditation

Country & Region



ABET is Engaged Globally

Consistent with ABET's Mission & Vision

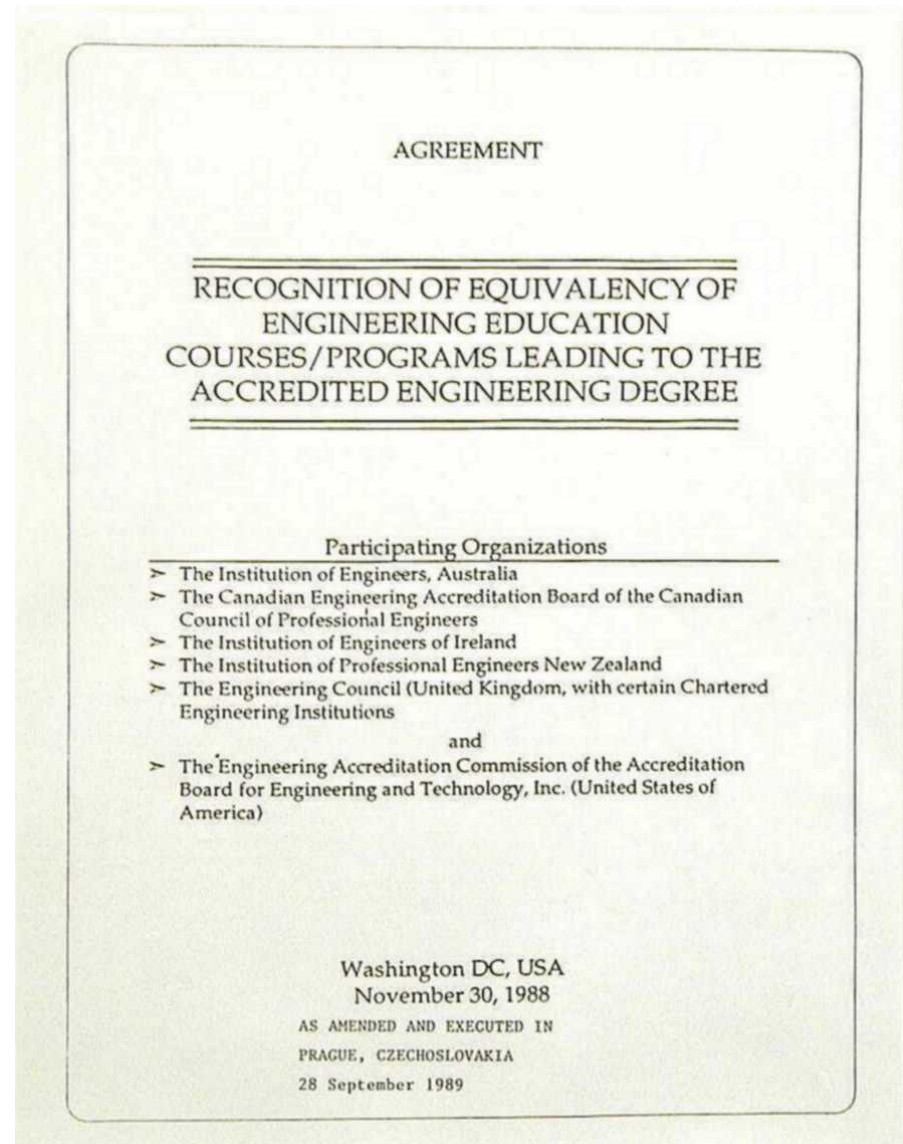
- Assistance: MOUs with 15 national agencies
- Mutual Recognition Agreements
 - Engineers Canada
 - Seoul Accord: Computing
 - International Engineering Alliance (IEA)
 - Washington Accord: Engineering (BS)
 - Sydney Accord: Engineering Technology (BS)
 - Dublin Accord: Engineering Technician (AS)
 - Membership in Global Organizations
 - Global Engineering Deans Council (GEDC)
 - Intl Federation of Engr Education Societies (IFEES)



Washington Accord

Engineering

- **ABET: U.S.** (1989)
- **EAust: Australia** (1989)
- **CEAB: Canada** (1989)
- **EI: Ireland** (1989)
- **IPENZ: New Zealand** (1989)
- **EngC: UK** (1989)
- **HKIE: Hong Kong** (1995)
- **ECSA: South Africa** (1999)
- **JABEE: Japan** (2005)
- **IES: Singapore** (2006)
- **IEET: Chinese Taipei** (2007)
- **ABEEK: South Korea** (2007)
- **BEM: Malaysia** (2009)
- **MUDEK: Turkey** (2011)
- **AEER: Russia** (2012)



Mutual Recognition Agreements

Sydney Accord (Engineering Technologist, 4 year BS)

- Australia - *IEAust*
- Canada - *CEAB*
- Hong Kong China - *HKIE*
- Ireland - *IEI*
- New Zealand - *IPENZ*
- South Africa - *ECSA*
- United Kingdom - *EngC*
- United States – *ABET*

Mutual Recognition Agreements

Dublin Accord (Engineering Technician, 2 Year AS)

- Australia - *IEAust*
- Canada - *CEAB*
- Ireland - *IEI*
- South Korea - *ABEEK*
- New Zealand - *IPENZ*
- South Africa - *ECSA*
- United Kingdom - *EngC*
- United States – *ABET*



Basics of ABET Accreditation

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)

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

Objectives of ABET Accreditation

- 1) Assure that graduates of an accredited program are adequately prepared to enter and continue the practice of engineering
- 2) Stimulate the improvement of engineering education
- 3) Encourage new and innovative approaches to engineering education and *its assessment*

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

➤ Requires commitment to continuous improvement

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**

Underlying Principles

- The process of accreditation is ***evidence-based*** and should drive decision-making to assure 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

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** is used in the Continuous Improvement Process
- Effective assessment uses relevant **direct, indirect, quantitative** and **qualitative** measures as appropriate to the outcome or objective being measured

Assessment

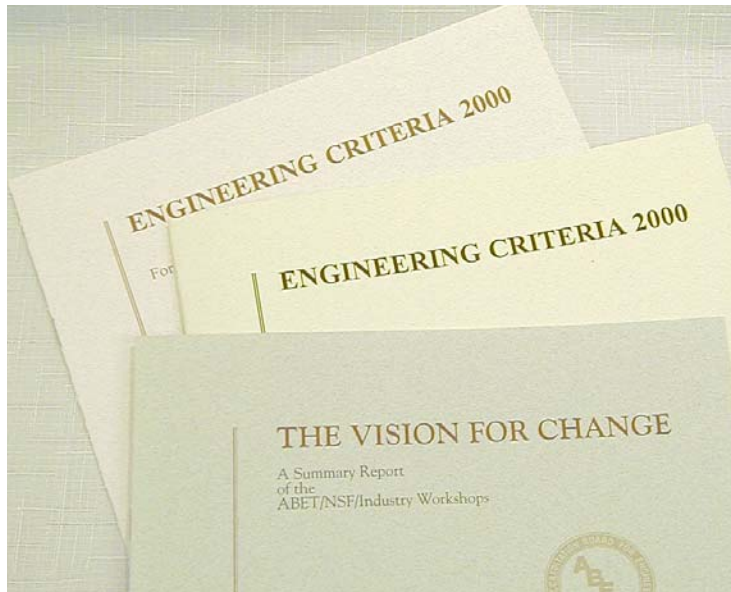
How Well Are We Doing?



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

The guiding principles of accreditation decisions



ABET Criteria

Overview of Criteria

- The criteria are intended to:
 - Ensure 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.

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

ABET Criteria

1. Students
2. Program Educational Objectives
3. Program (Student) Outcomes
 - Specific to each program
4. Continuous Improvement
5. Curriculum
6. Faculty
7. Facilities
8. Support

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
- Assure that all students meet all program graduation requirements

Criterion 2: Program Educational Objectives (PEOs)

- 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

Criterion 3:

Student Outcomes

- The program must have documented student outcomes that prepare graduates to attain the program educational objectives.
 - Narrow statements that 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 in their matriculation through the program.

Criterion 3:

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.

Criterion 3:

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

Criterion 3:

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 outcomes specific to field of study (“Program Criteria”)

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.

Criterion 5: Curriculum (EAC)

- Faculty must assure that the curriculum devotes adequate attention and time to each component, consistent with objectives of the program and institution.
 - One year of 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

Criterion 5: Curriculum (EAC)

- General education component that complements 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

Criterion 6: Faculty

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

Criterion 7: Facilities

- Adequate to (safely) accomplish educational objectives and outcomes of the program
- Foster faculty-student interaction; encourages professional development & professional activities; and provide opportunities to use modern engineering tools

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

Program Criteria

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



Accreditation Process

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

Accreditation Timeline

18 month process



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

Program Name

Why is ABET Concerned with Program Names?

- Protect the public
 - Truth in advertising
 - Program prepares graduates for what it claims
- Protect potential employers
 - Implied expertise = actual expertise
- Assist the professions
 - Some professions defined/licensed by law
 - International consistency/standards

Program Names Determine:

- Which ABET Commission is responsible
 - ASAC, CAC, EAC, ETAC
- Which professional society is responsible
 - Appropriate program evaluators
- Which criteria are applicable
 - “General Criteria” for all programs
 - “Program Criteria” for certain disciplines

ABET Terms	2009-10 Definitions
Program Educational Objectives (PEO)	Program Educational Objectives are broad statements that describe the career and professional accomplishments that the program is preparing graduates to achieve.
Student (Program) Outcomes	Student Outcomes are narrower statements that 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 in their matriculation through the program.
Performance Criteria	Specific, <u>measurable</u> statements identifying the performance(s) required to meet the outcome; confirmable through evidence.
Assessment	Assessment is one or more processes that identify, collect, and prepare data to evaluate the achievement of program outcomes and program educational objectives.
Evaluation	Evaluation is one or more processes for interpreting the data and evidence accumulated through assessment practices. Evaluation determines the extent to which program outcomes or program educational objectives are being achieved, and results in decisions and actions to improve the program.

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

Self-Study Questionnaire

- Provides a format for the self-study. The reader expects to see your self-study report developed more or less in the format of the Self-Study Questionnaire
- Provides all items that appear in the self-study questionnaire *Table of Contents*
- Currently specific to each commission

Self-Study Contents (EAC)

- Background Information
- Criterion 1. Students
- Criterion 2. Program Educational Objectives
- Criterion 3. Student Outcomes
- Criterion 4. Continuous Improvement
- Criterion 5. Curriculum
- Criterion 6. Faculty
- Criterion 7. Facilities
- Criterion 8. Support
- Program Criteria

Self-Study Contents (EAC)

- Appendix A – Course Syllabi
- Appendix B – Faculty Resumes
- Appendix C – Laboratory Equipment
- Appendix D – Institutional Summary

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
 - Observation – “friendly advice”

Definitions:

Levels of Compliance

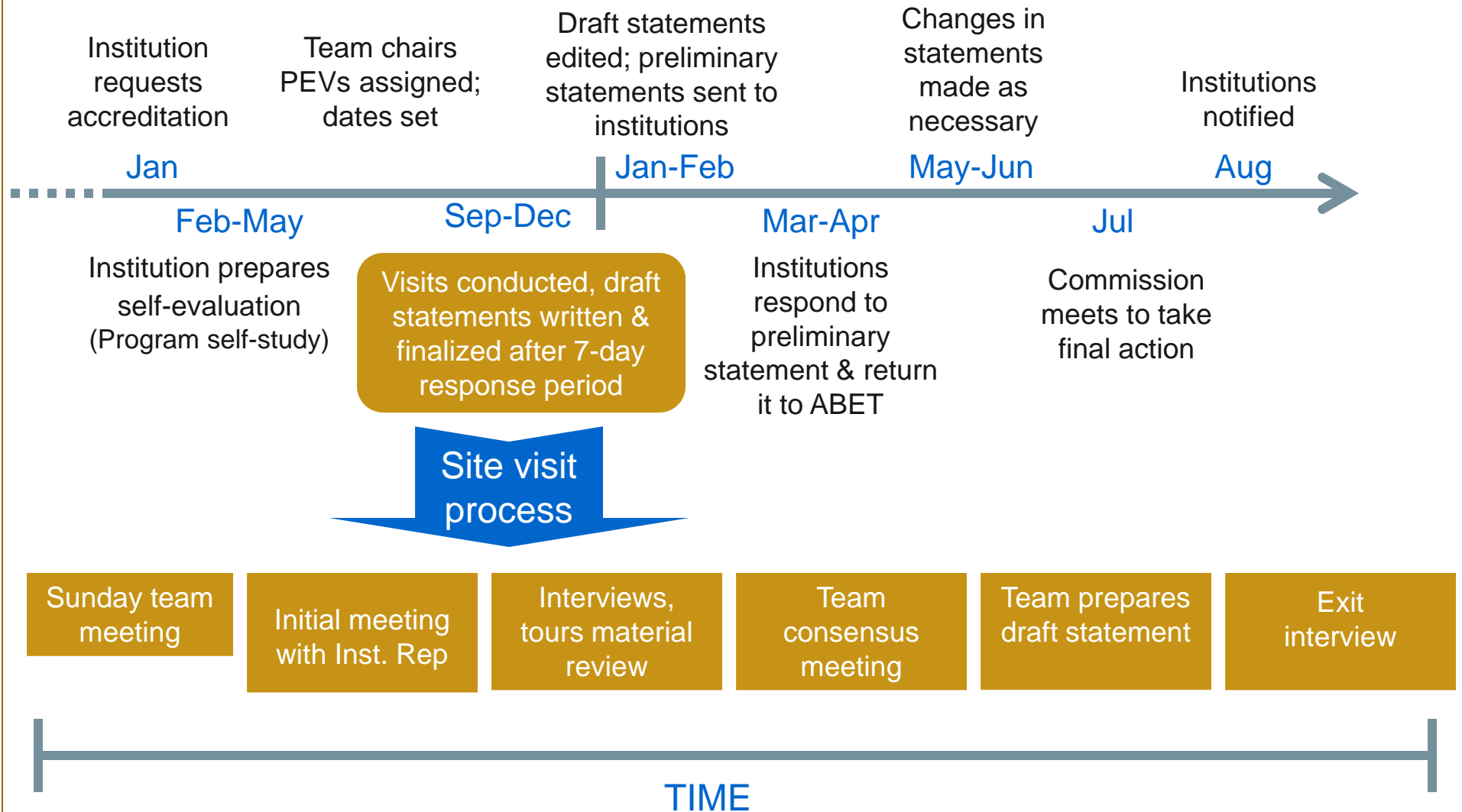
- Deficiency – A criterion, policy, or procedure is **NOT** satisfied. Therefore, the program is **not in compliance** with the criterion, policy, or procedure
- Weakness – A program lacks the strength of compliance with a criterion, policy, or procedure to ensure that the quality of the program will not be compromised. Therefore, remedial action is required to strengthen compliance with the criterion, policy, or procedure prior to the next evaluation

Definitions:

Levels of Compliance (cont.)

- Concern – A program currently satisfies a criterion, policy, or procedure; however, the potential exists for the situation to change such that the criterion, policy, or procedure may not be satisfied.
- Observation – A comment or suggestion which does not relate directly to the accreditation action but is offered to assist the institution in its continuing efforts to improve its programs.

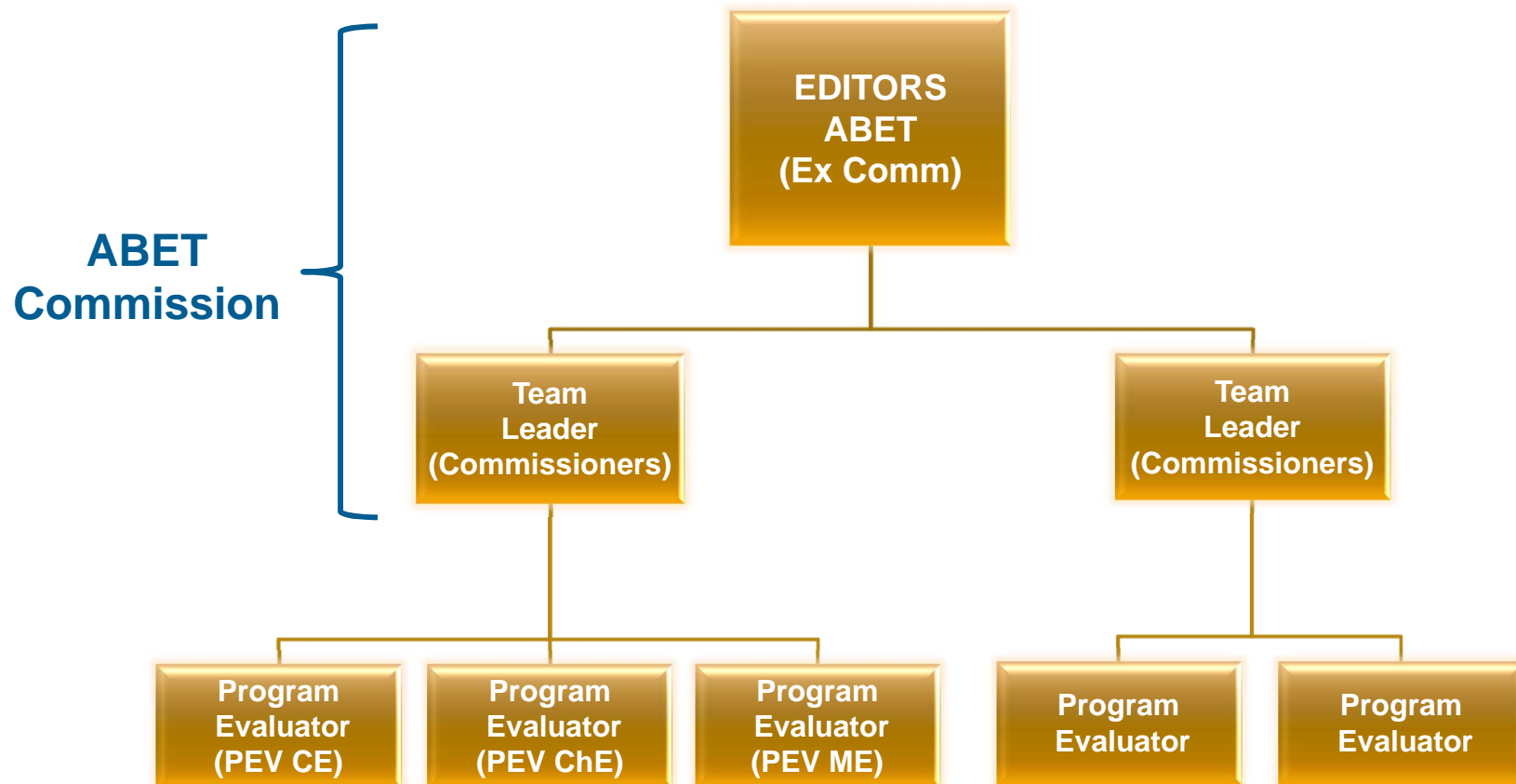
Accreditation Timeline



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
 - Provides direct, observable evidence that cannot be obtained from the Self-Study

An Accreditation Team



Post-Visit Process

- 7-day response from institution after the visit
 - Corrects errors of fact only
 - Extensive responses will be not be considered until due process
- Editing cycle
 - Team chair prepares draft statement
 - Two levels of editing by executive committee members
- Draft statement prepared and sent to institution, typically beginning in January

Post-Visit Process (cont.)

- 30-day due process response from institution
 - 30 days after the draft statement is received
 - But don't wait for the draft to start working!
- Editing cycle
 - Team chair prepares final statement after receipt of the due process response.
 - Review by two executive committee members
- Final accreditation action at summer meeting
- ABET sends final statement and accreditation letter to institution

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 Accredite

**Interim
evaluation
only**

Duration of Accreditation Actions

General Review Visits

Weak?	Def?	Action		Duration (in years)
No	No	NGR	Next General Review	6
Yes	No	IR	Interim Report	2
Yes	No	IV	Interim Visit	2
—	Yes	SC	Show Cause	2

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

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

Resources

Program Assessment Workshop

- Intensive, Interactive 1-day Workshop
- Introductory and Advanced levels
- Offered multiple times & locations per year



- April of each year
- Over 80 Sessions
- Four educational tracks
- Accreditation Track
- Resource Room – example Self-Studies



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

ABET Webinars

- Various topics
- Multiple offerings



ABET Website: www.abet.org



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



The screenshot shows the ABET website homepage. At the top is a dark navigation bar with the ABET logo, tagline "Assuring Quality • Stimulating Innovation", and links for Home, News, Contact, Login, and Accredited Program Search. Below this is a secondary navigation bar with links for Accreditation, Program Evaluators, Member Societies, International, Events, Publications, and About ABET. The main content area features a large banner image of a woman working with cables, with the text "Assuring Quality in Technical Education" and a row of small icons. To the right of the banner is a "Learn More" section with links for Students & Families, Faculty & Administrators, Volunteers, and Industry & Government. Below the banner are three columns: "Upcoming Events" listing meetings from July to August 2012; "What's New at ABET" listing recent awards and conferences; and "Find an Accredited Program" which includes a search button, a "Log in to MyABET" button, and a "Quick Links" section for institutional representatives.

ABET Assuring Quality • Stimulating Innovation

Home News Contact Login Accredited Program Search

Site Search

Accreditation Program Evaluators Member Societies International Events Publications About ABET

Assuring Quality in Technical Education

Learn More

- Students & Families
- Faculty & Administrators
- Volunteers
- Industry & Government

Upcoming Events

- July 19, 2012
Summer Commission Meeting
- August 7, 2012
Institute for the Development of Excellence in Assessment Leadership (IDEAL) - August 2012
- August 16, 2012
Program Assessment Workshop - San Diego
- August 25, 2012
Program Assessment Workshop - Baltimore

What's New at ABET

- June 25, 2012
EAC Adjunct Pat Daniels Receives ASEE Distinguished Educator Award
- June 18, 2012
ASEE Conference - Educational Innovation and ABET Accreditation
- May 8, 2012
Texas Tech, ASEE Honor ABET Volunteers
- April 16, 2012
ABET Board Updates Strategic Plan

Find an Accredited Program

ABET accredits over 3,100 applied science, computing, engineering, and technology programs at more than 660 institutions in 23 nations.

Accredited Program Search

Log in to MyABET

Quick Links

- Institutional Representatives - Presentations from the 2011 Summer Meeting

Program Assessment Workshops

- Intensive, Interactive workshop
 - One day
 - Introductory and Advanced levels
 - Identify key elements of functional assessment plan
 - Broaden understanding of CQI processes
 - Open enrollment with registration fee
 - Generally 1-3 years from evaluation visit
 - Train 300+ faculty per year
 - Multiple offerings each year, various locations
 - More info at www.abet.org



- 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***

ABET Webinars



- 90-minute webinars
 - Multiple offerings on a variety of topics
 - Accreditation basics, assessment tools, etc.
 - Include on-screen presentations
 - Multiple viewers at one site
 - 550 “connections” this past year
 - Presented by ABET volunteers and staff
 - Many offered at no cost
 - More info at www.abet.org

ABET Symposium

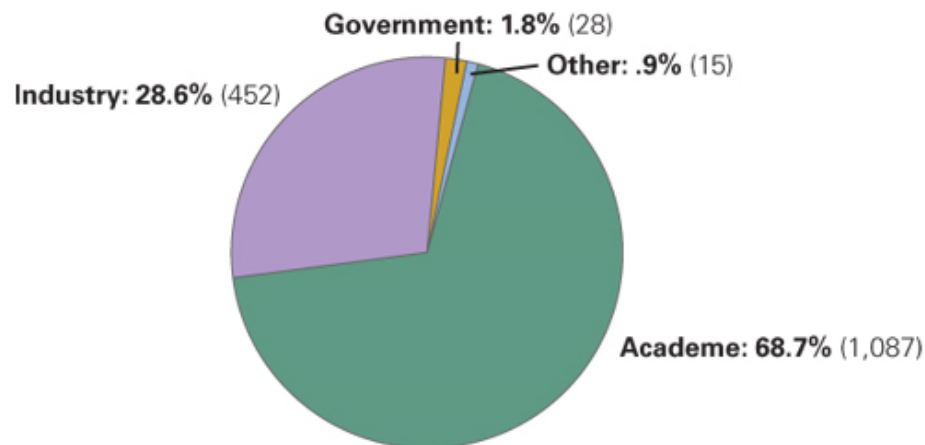


- 4-5 April 2014, Pittsburg, PA
- Four educational tracks
 - Program Assessment
 - Preparing for Accreditation
 - Innovations in Technical Education
 - Program Evaluator Development
- Self-Study Room
 - Review sample self-studies
- Pre-Symposium Workshops

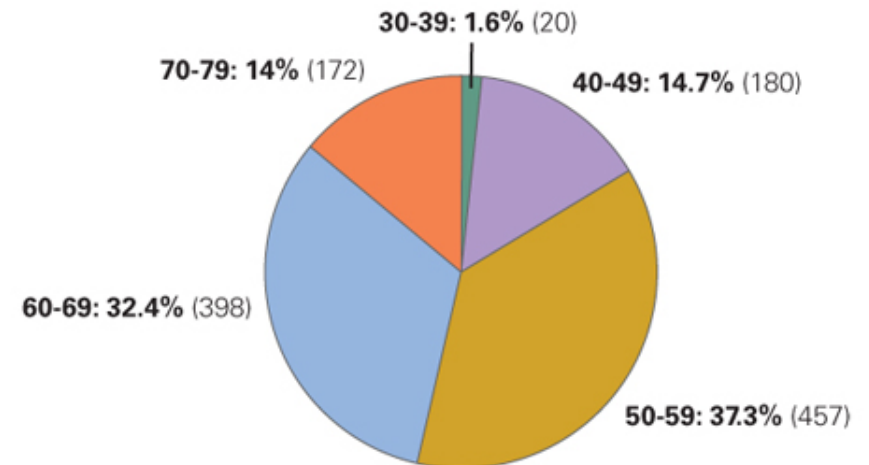
ABET Challenges

Volunteer Pool: Sustainability

Industry vs. Academe



Age



Projected growth rate

- 100+ new programs per year

ABET needs Program Evaluators

- Apply at www.abet.org

85,000 students graduate from ABET-accredited programs each year!



Questions?



Thank you for your participation!

Michael K. J. Milligan, Ph.D., P.E.

ABET Executive Director

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www.abet.org