ABET Overview

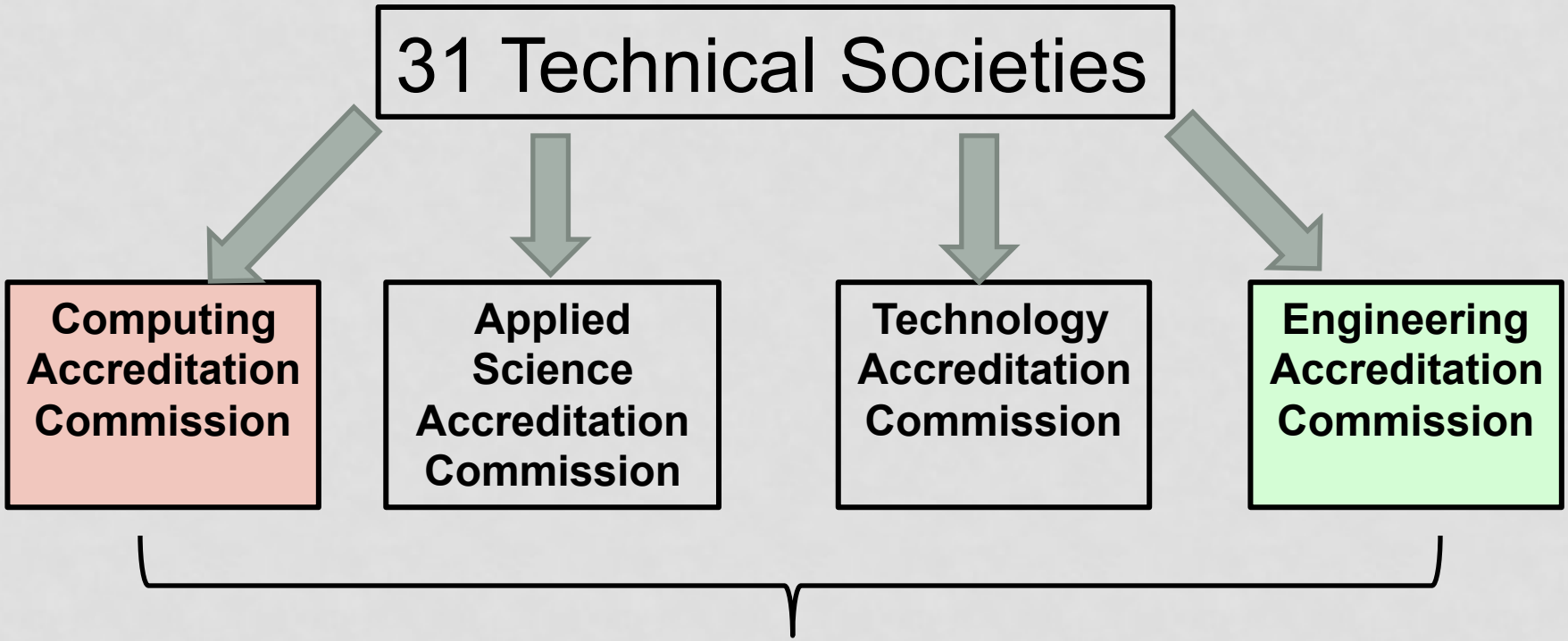
BOURNS COLLEGE OF ENGINEERING (RAVI'S PRESENTATION)

OCTOBER 11, 2012

WHAT IS ABET?

- Nonprofit, non-governmental organization
  - Accredits college and university programs in applied science, computing, engineering, and engineering technology.
- Accredits over 3,100 programs at more than 670 colleges and universities in 24 countries.
  - Provides specialized, programmatic accreditation that evaluates an individual program of study, rather than evaluating an institution as a whole.

WHY DO WE CARE ABOUT ABET?



Professional Licensure ("PE" certification, say) requires a degree from an ABET-accredited program.
Students and parents want to see accreditation.

WHO IS SHOWING UP?

- Computing Accreditation Commission (CAC)
  - To accredit Computer Science
- Engineering Accreditation Commission (EAC)
  - Bioengineering, Chemical Engineering, Computer Engineering, Electrical Engineering, Environmental Engineering, Mechanical Engineering, Materials Science & Engineering.
- Eleven people in all
  - CAC team leader, EAC Team leader
  - Eight Program Evaluators (PEVs), one per program
  - One Observer
- November 4—6, 2012

GENERAL CRITERIA

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

Big 3

Note: There are also Program Criteria, specific to each program. They must also be satisfied.

WHAT ARE PEO'S AND SO'S?

- Program Educational Objectives (PEOs): ABET's definition
  - *PEOs "are broad statements that describe what graduates are expected to attain within a few years of graduation"*
- Student Outcomes (SOs): ABET's definition
  - *Student Outcomes describe what students are expected to know and be able to do by the time of graduation (skills, knowledge, and behaviors)*
- ABET does not tell us how to achieve PEOs or SOs
  - They just want us to prove that we do
- Programs accomplish this via "Course Objectives"
  - Learning Outcomes, which we measure, for each course
    - Help us demonstrate that we achieve Student Outcomes

CRITERION 2: PROGRAM EDUCATIONAL OBJECTIVES (EAC AND CAC)

- 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 and effective process, involving program constituencies, for the periodic review and revision of these program educational objectives.

CRITERION 3: STUDENT OUTCOMES (CAC)

a) An ability to apply knowledge of computing and mathematics appropriate to the discipline
b) An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution
c) An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs
d) An ability to function effectively on teams to accomplish a common goal

CRITERION 3: STUDENT OUTCOMES (CAC)

e) An understanding of professional, ethical, legal, security and social issues and responsibilities

f) An ability to communicate effectively with a range of audiences

g) An ability to analyze the local and global impact of computing on individuals, organizations, society

h) Recognition of the need for and an ability to engage in continuing professional development

i) An ability to use current techniques, skills, and tools necessary for computing practice.

CRITERION 3: STUDENT OUTCOMES (EAC)

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 (EAC)

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

CRITERION 3: STUDENT OUTCOMES (EAC)

h) The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context

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.

CRITERION 4: CONTINUOUS IMPROVEMENT

- The program must regularly use appropriate, documented processes for assessing and evaluating the extent to which both the Program Educational Objectives and 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

ABET "DO"S FOR PROGRAMS

- Do make exhibit materials easy to find & follow
  - Ensure they are well-organized & clearly labeled
- Do provide texts & syllabi for most commonly taken math and science courses
- Do ensure that exhibited student work
  - demonstrates type & level of work required by program
  - demonstrates grading standards & faculty feedback
  - Includes varying levels of quality of work

MORE "DO"S FOR PROGRAMS

- Do provide documentation of interaction with constituents
- Do provide data used to assess level of achievement of PEOs & Student Outcomes
- Do provide evaluation of assessment data/results
- Do describe continuous improvement activities
- Do demonstrate link between evaluation results and continuous improvement activities

"DO"S FOR PARTICIPANTS

- Do be flexible
  - Schedules changes may happen on the fly
- Do understand all ABET terminology
- Do understand your own ABET process
  - How are program changes made?
  - How is evaluation done?
  - How is continuous improvement done?

"DO"S FOR PARTICIPANTS

- Do know your PEOs and Student Outcomes
- Do read your Self-Study document
  - Go to www.engr.ucr.edu
  - Scroll down to "intranet" at the bottom-right corner of the page. Under Resources, click on the ABET/Accreditation link
  - Find your department/degree program, and you will find the submitted version of the 2012 self-study.
- Do say that you support the ABET process
  - Show enthusiasm!
  - Prepare a couple of examples of how ABET helped you.

"DO"S FOR PARTICIPANTS

- Do respect the ABET Team's time
  - They are here at our invitation
  - They are unpaid volunteers
- Do know all your resources
  - ABET Coordinator
  - Program Chair
  - Student Affairs Unit
  - Lab Staff / Safety Officer
  - Undergraduate advisor

DON'TS FOR PARTICIPANTS

- Don't volunteer more than necessary
  - Give all the information they ask for
    - Don't open up new avenues for them to explore
- Don't use ABET review to obtain resources
  - Lack or resources is a red flag for ABET
    - Best to discuss resources before/after ABET visit
- Don't appear disengaged/passive
  - Don't know the answer?
    - Say you know who too ask!

POSSIBLE ABET FINDINGS

- Deficiency
  - A criterion, policy, or procedure is not satisfied. The program is not in compliance with the criterion, policy, or procedure.
- Weakness
  - Program lacks strength of compliance with a criterion, policy, or procedure to ensure that the quality of the program will not be compromised. Remedial action is required to strengthen compliance prior to the next review.
- Concern
  - Program currently satisfies a criterion, policy, or procedure, but the potential exists for the situation to change such that the criterion, policy, or procedure may not be satisfied.
- Observation
  - A comment or suggestion that does not relate directly to the accreditation action but is offered to assist the institution in its continuing efforts to improve its programs.

ACCREDITATION ACTIONS

- Next General Review (NGR)
  - No Deficiencies or Weaknesses. Back in six years. Yay!
- Interim Report (IR)
  - One or more Weaknesses. A progress report is required.
    - This action has a typical duration of two years.
- Interim Visit (IV)
  - One or more Weaknesses. An on-site review is required.
    - This action has a typical duration of two years.
- Show Cause Report (SCR)
  - One or more Deficiencies. A progress report is required.
    - This action has a typical duration of two years.

ACCREDITATION ACTIONS

- Show Cause Visit (SCV)
  - One or more Deficiencies. A site visit is required.
    - This action has a typical duration of two years.
- Not To Accredit (NA)
  - Deficiencies serious. Lack of compliance with criteria.
  - Accreditation is lost
    - Only after SCR or SCV for accredited programs (2 years)
    - Can happen right away for new programs!
    - NA is the only appealable action

Global View of ABET Schedule