ABET/CAC/CSAB

- **ABET** – Parent organization for accrediting programs of various types
- **CAC** – Subgroup within ABET responsible for accrediting computing-related programs
- **CSAB** – Represents the computing professional societies to ABET
ABET organizational structure

ABET Board of Directors

- Applied Science Commission
  - 71 accredited programs at 57 institutions
- Computing Accreditation Commission
  - 309 accredited programs at 256 institutions
- Engineering Accreditation Commission
  - 1853 accredited programs at 383 institutions
- Technology Accreditation Commission
  - 649 accredited programs at 233 institutions

2008-09 cycle: 900 programs reviewed by 4 commissions
Including 47 programs at international institutions

Based on ABET statistics as of Oct 1, 2008.
Membership and responsibilities

ABET Board of Directors:
- Three CSAB members
- Provides strategic vision/mission
- Approves policy
- Approves criteria
- Considers appeals

CAC:
- Nominated by member societies and elected by the commissioners
- Recommends criteria
- Conducts the accreditation process
- Assigns team chairs to campus visits
- Makes accreditation decisions
CSAB

• Only ABET member society for computing accreditation

• A federation of ACM, IEEE-CS and AIS (withdrawing)

• Lead society for computer science, information systems, information technology and software engineering
  – Software engineering accreditation is granted by the Engineering Accreditation Commission (EAC)

• Cooperating society for biological engineering (EAC), computer engineering (EAC) and information engineering technology (TAC)
CSAB History

- 1985 – CSAB Incorporated
  Formed by ACM and IEEE-CS
- 1986 – First CS programs
- 2000 – CSAB joins ABET
  CSAC becomes CAC
- 2002 – IS accreditation
- 2005 – IT accreditation
CAC

- CAC is 275 volunteers
- 9 ExCom members
  - Plus 1 public member
- 40 Commissioners
- ~226 CSAB PEVs
Overall Accreditation Timeline

Jan
Institution RFE submission deadline

May – July
Team chair assigned
Visit dates set
Team members chosen

Dec – Mar
Draft statements sent to institutions
Due response period

By Sep 1
Final statements to institutions

Pre-visit preparation:
Collect course materials
Collect assessment materials
Prepare Self-Study

Oct
Attend commission summit

Sep - Nov
Visits occur
7-day response period
Draft statements written & edit cycle occurs

July
CAC meets for final actions

July
Self Study due
Attend rep meeting

Apr - May
Final statements written & edit cycle occurs

Year 1

Year 2

Leadership and Quality Assurance in Applied Science, Computing, Engineering, and Technology Education
An Effective Self-Study

• Self-study is core source of data on your program
• Describes how your program satisfies the criteria
• Clearly organized, well written, complete

• Self-study template is available from ABET the July preceding the visit year
Your Audience

• Visit team
  – Primarily the PEV assigned to program

• PEV will
  – Evaluate your program based on material in your Self-Study
  – Form an opinion before arriving on campus
  – Identify areas for examination & additional material to request
PEV Information Resources

• Self Study
• Transcripts
• Catalog & Degree Requirements
• Other publications
• Institution & Program Websites

• Plus interviews and tours during on-site visit
PEV Analysis

• Are all accreditation criteria met
  – Are there concerns, weaknesses or deficiencies for any criterion
• Does the program meet detailed accreditation requirements (curriculum specifics, etc)
• Do students meet graduation requirements
• Are courses taken in the proper sequence
• Were correction actions taken after previous visit
PEV Analysis (cont’d)

PEV makes these decisions based on:

- the Self-Study material
- a two-day campus visit

Self-Study is a core resource for the PEV
PEV Output & Artifacts

• Program Evaluator Visit Report
• Program Audit Form
• Draft Statement
• PEV Recommended Action
CAC Criteria

• General Criteria
  – Apply to all CAC programs

• Program Criteria
  – Additional criteria for
    • Computer Science
    • Information Systems
    • Information Technology
General Criteria Organization

- Students
- Program Educational Objectives
- Program Outcomes
- Continuous Improvement
- Curriculum

- Faculty
- Facilities
- Support
- Program Criteria
Possible Evaluations of a Criterion

- **Deficiency**: Indicates that a criterion, policy, or procedure is not satisfied.
  - Accreditation is not possible when there is an uncorrected deficiency.*

- **Weakness**: Indicates that 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. Remedial action is required to strengthen compliance prior to the next evaluation.
  - Interim evaluation, via report or visit, required in 2 years to assess status.

- **Concern**: Indicates that 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.
  - This does not affect the accreditation action.

- All elements of the criterion are fully satisfied with no concerns.
# Accreditation Actions

<table>
<thead>
<tr>
<th>Action</th>
<th>Description</th>
<th>Typical Duration (yrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NGR</td>
<td>Next General Review (No deficiencies or weaknesses)</td>
<td>6</td>
</tr>
<tr>
<td>IR</td>
<td>Interim Report</td>
<td>2</td>
</tr>
<tr>
<td>IV</td>
<td>Interim Visit (No deficiencies; one or more weaknesses)</td>
<td>2</td>
</tr>
<tr>
<td>SC</td>
<td>Show Cause (One or more deficiencies in currently accredited program)</td>
<td>2</td>
</tr>
<tr>
<td>RE</td>
<td>Report Extended</td>
<td>2 or 4</td>
</tr>
<tr>
<td>VE</td>
<td>Visit Extended</td>
<td>2 or 4</td>
</tr>
<tr>
<td>SE</td>
<td>Show Cause Extended</td>
<td>2 or 4</td>
</tr>
<tr>
<td>NA</td>
<td>Not to Accredit</td>
<td>—</td>
</tr>
</tbody>
</table>

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CAC Criteria

• Objectives, Outcomes and Continuous Improvement:
  – Criterion 2 – Objectives
  – Criterion 3 – Outcomes
  – Criterion 4 – Continuous Improvement

• Other:
  – Criterion 1 – Students
  – Criterion 5 – Curriculum
  – Criterion 6 – Faculty
  – Criterion 7 – Facilities
  – Criterion 8 - Support

Program Criteria – Will be discussed in the context of the criteria above to which they apply
Criteria 2-4

• Criterion 2 – Objectives
• Criterion 3 – Outcomes
  – Additional program criteria for CS, IS and IT
• Criterion 4 – Continuous improvement

• Key criteria
• Source of most shortcomings
(1) Develop Objectives & Outcomes

- Relates to Criteria 2 and 3
- **Program Educational Objectives** – Broad statements of career and professional accomplishments that graduates are expected to achieve
- **Program Outcomes** – Narrower statements of what students are expected to be able to know and do by the time of graduation. Skills, knowledge and behaviors acquired in their matriculation through the program
Criterion 2: Program Educational Objectives

• The program has **documented, measurable** educational objectives that are based on the needs of the program’s constituencies.

• Example:
  – Produce graduates who are prepared for industrial positions with emphases in hardware and embedded systems.
Criterion 3: Program Outcomes

- Two parts to Criterion 3
- First part:
  - The program has documented, measurable outcomes that are based on the needs of the program’s constituencies.
- Example outcome:
  - An ability to conduct software/hardware codesign
Criterion 3 – Part 2

• The program enables students to achieve, by the time of graduation:

  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
  e) An understanding of professional, ethical, legal, security and social issues and responsibilities
Criterion 3 (continued)

• The program enables students to achieve, by the time of graduation:
  
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, and 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.
Program Specific Outcomes - CS

• CS Criteria adds attributes (j) and (k) to the outcomes criterion:
  – (j) An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices. [CS]
  – (k) An ability to apply design and development principles in the construction of software systems of varying complexity. [CS]
Criterion 4 – Continuous Improvement

• The program uses a documented process incorporating relevant data to regularly assess its program educational objectives and program outcomes, and to evaluate the extent to which they are being met. The results of the evaluations are documented and used to effect continuous improvement of the program through a documented plan.