ABET and CSAB

ABET Accreditation Criteria for Cybersecurity Programs

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How to become an ABET Program Evaluator

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Agenda

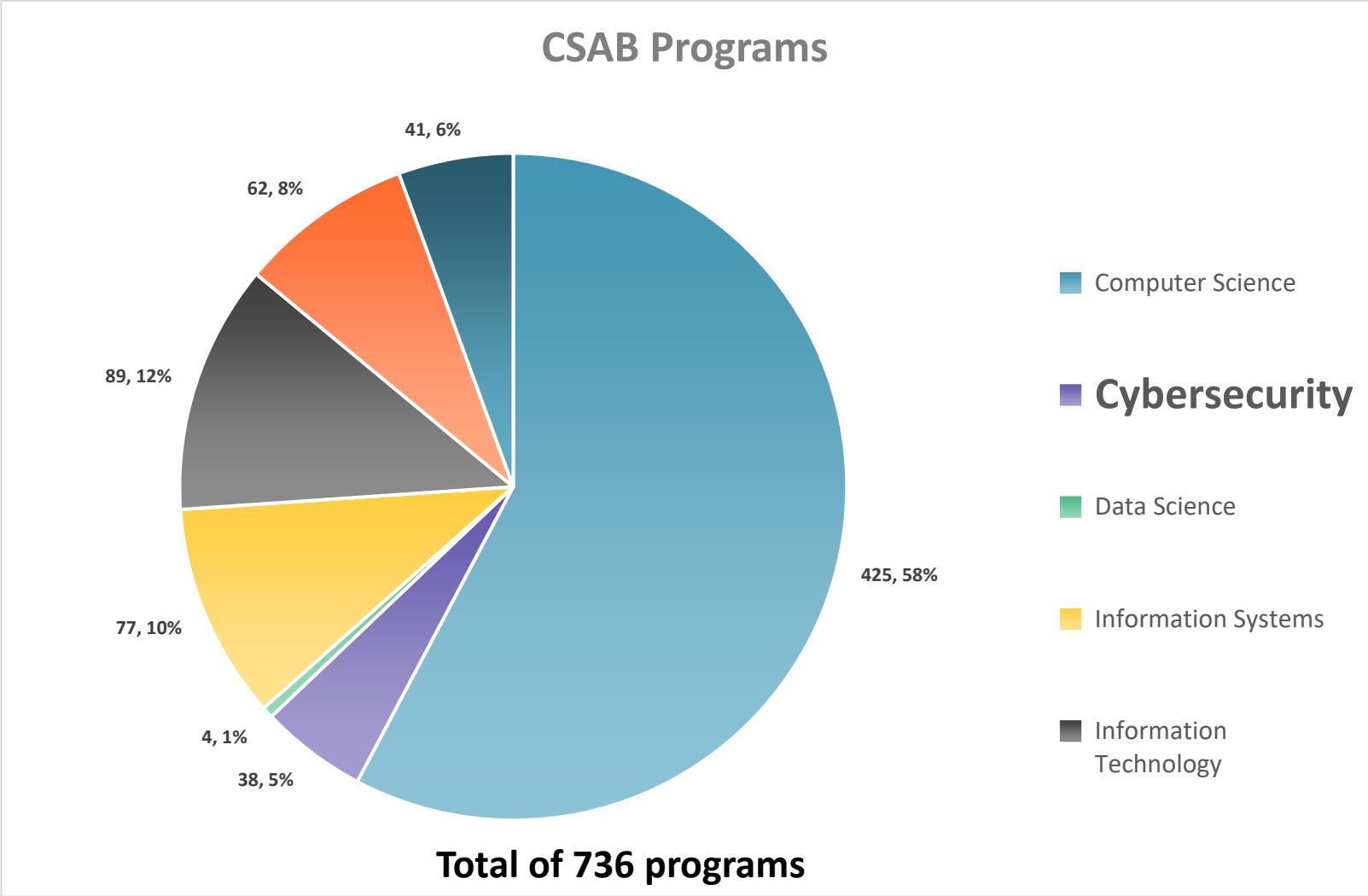
A. Value of Program Accreditation for Cybersecurity

B. Who are ABET and CSAB?

C. Accreditation Criteria for Cybersecurity

D. How to become an ABET Program Evaluator

ABET Accredited Programs Worldwide (All)



Why Accredit a Cybersecurity Program?

- Define Standards for Academic Excellence
- Holistic Cybersecurity Program Criteria
- Improved Academic Progression
- Enhanced Articulation Agreements
- Recognition as a Leader in Cybersecurity Education
- Competitive Advantage in Student Recruitment
- External Validation and Peer Recognition
- Continuous Improvement & Quality Assurance
- Clarified Definition of Cybersecurity
- Broad Impact & Growing Recognition in the Field

abet.org/accreditation/new-and-developing-program-areas/cybersecurity

ABET and CSAB

Who are ABET & CSAB?

Who are ABET and CSAB?

ABET's 35+ Member Societies

ABET

Who Is ABET?

About ABET

ABET is a nonprofit, ISO 9001 certified quality assurance organization focused on **college and university programs in the science, technology, engineering and math (STEM) disciplines**. Through our work and our partnerships, we help ensure that the next generation of **STEM professionals** is equipped to help build a world that is safer, more efficient, more inclusive and more sustainable.

Who Recognizes ABET Accreditation?
In the U.S.

- 35 Member and Associate Member Societies of ABET
- State Boards for Engineering & Surveying Licensure & Registration (over 55 jurisdictions)
- U.S. Patent Office
- U.S. Reserve Officers Training Corps
- Council of Engineering Specialty Boards (CESB)
- Board of Certified Safety Professionals (BCSP)
- Accreditors in other disciplines
- U.S. Trade Office
- U.S. State Department
- Employers (position announcements)

Who Recognizes ABET Accreditation?
Outside the U.S. – International Partners

- International Engineering Alliance (IEA)
  - Engineering Accrediting bodies from 32 countries
- **Seoul Accord (Computing)**
  - Accrediting bodies from 12 countries
- Memoranda of Understanding with 17 international organizations
- STEM education organizations
  - International Federation of Engineering Education Societies
  - Global Engineering Deans Council
  - World Federation of Engineering Organizations
  - UNESCO

Seoul Accord

Computing and IT

- Australia – *ACS*
- Canada – *CIPS*
- Chinese Taipei – *IEET*
- Hong Kong China – *HKIE*
- Japan – *JABEE*
- South Korea – *ABEEK*
- United Kingdom – *BCS*
- United States – *ABET*

ABET

- Core Purpose
  - With ABET accreditation, students, employers, and the society we serve can be confident that a program meets the quality standards that produce graduates prepared to enter a global workforce.

- What does ABET Accredit?
  - An academic program leading to a specific degree in a specific discipline
  - Misconceptions clarified:
    - Not institutions
    - Not schools, colleges, or departments
    - Not facilities, courses, or faculty
    - Not graduates
    - Not degrees

Value of Accreditation

- ABET-accredited programs recognized globally
  - Commitment to quality education
  - “Be Confident” … that an ABET accredited program meets accepted standards of quality
  - abet.org/accreditation/new-and-developing-program-areas/
- Outcomes-based approach
- “What is learned” vs. “what is taught”
- Emphasis on continuous quality improvement
- Criteria encourage innovation

Steps to Accreditation

- Determine if you are ready
- Complete Readiness Review (if needed)
  - Due Oct 1st
- Submit Request for Evaluation
  - Due Jan 31st
- Complete your Self-Study Report
  - Due July 1st
- Prepare for On-Site Visit
  - During September—December
- Post-Visit Activities
  - Due Process responses
- Accreditation Action Decision
  - Made by the Commission during July meeting,
  - Notification sent by ABET Headquarters by August 31st

Who is CSAB?

- We are the professional society that provides the lead for accrediting programs in computing disciplines.
  - Associate, Bachelor, and Master's level programs

- We have program criteria in
  - Computer Science
  - Cybersecurity
  - Data Science
  - Information Systems
  - Information Technology
  - Software Engineering

  also other general computing areas.


acm
Association for Computing Machinery
ASA
AMERICAN STATISTICAL ASSOCIATION
Promoting the Practice and Profession of Statistics
IEEE COMPUTER SOCIETY
CSAB
LEADING COMPUTING EDUCATION

What is CSAB's role in Accreditation

- Only professional society for computing program accreditation
- We provide the
  - Domain knowledge
  - Professional expertise
  - Volunteers
  - Money
- We nominate
  - Program Evaluators (PEVs)
  - Commissioners and Team Chairs
  - ABET Governance and Leadership

Cybersecurity Program Criteria:
Associate degrees
Bachelor’s degrees
Masters degrees (general computing criteria)

Required Curriculum Criteria for Cybersecurity

The Program Criteria curriculum requirements (C5) are in addition to the General Criteria curriculum requirements and specify topics, but do not prescribe specific courses.

The C5 program criteria requirements for **cybersecurity** are:

a. At least 45 semester credit hours (or equivalent) of computing and cybersecurity coursework. The course work must include:
    1. Application of the crosscutting concepts of **confidentiality, integrity, availability, risk, adversarial thinking**, and **systems thinking**.
    2. Fundamental topics from each of the following:
        a. **Data Security:** protection of data at rest, during processing, and in transit.
        b. **Software Security:** development and use of software that reliably preserves the security properties of the protected information and systems
        c. **Component Security:** the security aspects of the design, procurement, testing, analysis, and maintenance of components integrated into larger systems.
        d. **Connection Security:** security of the connections between components, both physical and logical.
        e. **System Security:** security aspects of systems that use software and are composed of components ad connections.
        f. **Human Security:** the study of human behavior in the context of data protection, privacy, and threat mitigation.
        g. **Organizational Security:** protecting organizations from cybersecurity threats and managing risk to support successful accomplishment of the organizations' missions.
        h. **Societal Security:** aspects of cybersecurity that broadly impact society as a whole

Required Curriculum Criteria for Cybersecurity cont'd

The C5 program criteria requirements for **cybersecurity** are:

a. At least 45 semester credit hours (or equivalent) of computing and cybersecurity coursework. The course work must include:
   3. Advanced cybersecurity topics that build on crosscutting concepts and fundamental topics to provide depth.

b. At least 6 semester credit hours (or equivalent) of mathematics that must include discrete mathematics and statistics.

Proposed Addition: The application of AI best practices for defensive and offensive cybersecurity.

Any thoughts about proposed addition to C5 Program Criteria?

Computing General Criteria Changes: DEI-A (1st reading)

- **Criterion 5. Curriculum**
- The program's requirements must be consistent with its program educational objectives and designed in such a way that each of the student outcomes can be attained. The curriculum must combine technical, professional, and general education components **and must include diversity, equity, inclusion and accessibility topics consistent with the institution's mission.** The curriculum must prepare students for a career, further study, and lifelong professional development in the computing discipline associated with the program.
- The curriculum requirements specify topics, but do not prescribe specific courses. The program must include mathematics, statistics, and science appropriate to the discipline and at least 30 semester credit hours (or equivalent) of up-to-date coverage of fundamental and advanced computing topics that provide both breadth and depth. The computing topics must include:
    1. Techniques, skills, and tools necessary for computing practice.
    2. Principles and practices of security and privacy in computing.
    3. Local and global impacts of computing solutions on individuals, organizations, and society.

Feedback Requested

Proposed Changes to **General Criterion** C5 (Curriculum) for Computing Programs

https://www.surveymonkey.com/r/DXG29N5

ABET

Becoming a Program Evaluator

A Growing Need for PEVs

- Projected need for up to 2,500 experts within five years
- Major ABET priorities:
  - Work with societies to recruit PEV
  - Refine/improve training
  - Retain new PEVs

Why become an ABET Volunteer?

- Help ensure the quality of higher education
- Unique professional development opportunity
  - Use your specialized knowledge to improve educational experience for thousands of students
- Network with other professionals
  - A great source of experience-based knowledge
- Keep up to date and have input on the criteria
- Service to the community of people who develop and maintain quality education
- Serve your profession, “give back”

Steps to become an ABET volunteer

- Each member society manages the volunteers for the discipline
- For computing disciplines, that would be CSAB

Program Evaluator (PEV)
Competency Model

- Program Evaluators are the “face of ABET” and need to:
  - Provide the highest quality review of individual programs
  - Improve consistency of evaluators’ work
  - Ensure PEVs are adequately prepared to be effective team members and reviewers

Step 1 Apply PEV through CSAB website

https://www.abet.org/program-evaluators/become-a-program-evaluator/

Step 2 The Selection Process

- The deadline for applications for the year is November 30.
- Applications are reviewed by a committee consisting of CSAB members in the discipline
  - This happens in the November/December time frame
- Nominees are notified and enter the training process

Step 3 Training and Your Mentor

Once you are selected for training you are called a PEV Candidate (PEVC)

- Assigned a Mentor from CSAB/CAC
- Given a list of training dates to select from
- Given an ABET account on the AMS
- Given access to the online PEVC training materials
- Attend the SVT (simulated visit training) session that you selected

Step 4 Program Criteria Webinars

- After successful completion of the SVT, you will be invited to attend one or more virtual webinars for additional training
- This is the training on the specific program criteria for which you have been selected to serve as a PEV, e.g., Cybersecurity, Information Technology, Computer Science, Data Science, Information Systems
- The entire PEV candidate training process begins in March and ends in June.
- The online training must be completed at least three weeks before the Face-to-Face Training.

Step 5 Assignment to your Initial Visit

- After successful Program Criteria training, you are qualified to serve as a PEV
- CSAB tries to assign all new PEVs to a review during the first cycle after completion of training
  - US-based volunteers will be assigned to reviews within the US first
  - Those based outside the US will most likely be assigned outside the US
- Your Team Chair becomes your new mentor during your first review cycle

Thank you!

ABET/CSAB Booth @ CISSE 2024

- Stop by and talk with us…
  - About accrediting your cybersecurity program
  - About becoming a program evaluator (PEV) for cybersecurity
    - Associate degree
    - Bachelor's degree
- Stop by and pick up ABET and CSAB literature

Q & A

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