Criterion 1. Students

- Student performance must be evaluated.
- Student progress must be monitored to foster success in attaining student outcomes, thereby enabling graduates to attain program educational objectives.
- Students must be advised regarding curriculum and career matters.
- The program must have and enforce policies for accepting both new and transfer students, awarding appropriate academic credit for courses taken at other institutions, and awarding appropriate academic credit for work in lieu of courses taken at the institution.
- The program must have and enforce procedures to ensure and document that students who graduate meet all graduation requirements.

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.

Criterion 3. Student Outcomes

- The program must have documented and publicly stated student outcomes that include (1) through (5) below and any additional outcomes required by applicable Program Criteria. The program may define additional outcomes.
- Graduates of the program will have an ability to:
  1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
  2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
  3. Communicate effectively in a variety of professional contexts.
  4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
  5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.

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

- 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 to 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 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 for secure computing.
  3. Local and global impacts of computing solutions on individuals, organizations, and society.

Criterion 6. Faculty

- Each faculty member teaching in the program must have expertise and educational background consistent with the contributions to the program expected from the faculty member.
- The competence of faculty members must be demonstrated by such factors as education, professional credentials and certifications, professional experience, ongoing professional development, contributions to the discipline, teaching effectiveness, and communication skills.
- Collectively, the faculty must have the breadth and depth to cover all curricular areas of the program.
- The faculty serving in the program must be of sufficient number to maintain continuity, stability, oversight, student interaction, and advising.
- The faculty must have sufficient responsibility and authority to improve the program through definition and revision of program educational objectives and student outcomes as well as through the implementation of a program of study that fosters the attainment of student outcomes.

Criterion 7. Facilities

- Classrooms, offices, laboratories, and associated equipment must be adequate to support attainment of the student outcomes and to provide an atmosphere conducive to learning.
- Modern tools, equipment, computing resources, and laboratories appropriate to the program must be available, accessible, and systematically maintained and upgraded to enable students to attain the student outcomes and to support program needs.
- Students must be provided appropriate guidance regarding the use of the tools, equipment, computing resources, and laboratories available to the program.
- The library services and the computing and information infrastructure must be adequate to support the scholarly and professional activities of the students and faculty.

Criterion 8. Institutional Support

- Institutional support and leadership must be adequate to ensure the quality and continuity of the program.
- Resources including institutional services, financial support, and staff (both administrative and technical) provided to the program must be adequate to meet program needs.
- The resources available to the program must be sufficient to attract, retain, and provide for the continued professional development of a qualified faculty.
- The resources available to the program must be sufficient to acquire, maintain, and operate infrastructures, facilities and equipment appropriate for the program, and to provide an environment in which student outcomes can be attained.

DEFINITIONS: While ABET recognizes and supports the prerogative of institutions to adopt and use the terminology of their choice, it is necessary for ABET volunteers and staff to have a consistent understanding of terminology. With that purpose in mind, the Commissions will use the following basic definitions:

Program Educational Objectives – Program educational objectives are broad statements that describe what graduates are expected to attain within a few years of graduation. Program educational objectives are based on the needs of the program's constituencies.

Student Outcomes – Student outcomes describe what students are expected to know and be able to do by the time of graduation. These relate to the knowledge, skills, and behaviors that students acquire as they progress through the program.

Assessment – Assessment is one or more processes that identify, collect, and prepare data to evaluate the attainment of student outcomes. Effective assessment uses relevant direct, indirect, quantitative and qualitative measures as appropriate to the outcome being measured. Appropriate sampling methods may be used as part of an assessment process.

Evaluation – Evaluation is one or more processes for interpreting the data and evidence accumulated through assessment processes. Evaluation determines the extent to which student outcomes are being attained. Evaluation results in decisions and actions regarding program improvement.

General Criteria: General Criteria apply to all programs accredited by an ABET commission. Each program accredited by an ABET commission must satisfy every Criterion that is in the General Criteria for that commission.

PROGRAM CRITERIA FOR BACCALAUREATE **COMPUTER SCIENCE** AND SIMILARLY NAMED COMPUTING PROGRAMS
Lead Society: CSAB
These program criteria apply to computing programs using computer science or similar terms in their titles.

3. Student Outcomes
In addition to outcomes 1 through 5, graduates of the program will also have an ability to:

6. Apply computer science theory and software development fundamentals to produce computing-based solutions. [CS]

5. Curriculum
The curriculum requirements specify topics, but do not prescribe specific courses. These requirements are:

(a) Computer science: At least 40 semester credit hours (or equivalent) that must include:

1. Substantial coverage of algorithms and complexity, computer science theory, concepts of programming languages, and software development.
2. Substantial coverage of at least one general-purpose programming language.
3. Exposure to computer architecture and organization, information management, networking and communication, operating systems, and parallel and distributed computing.
4. The study of computing-based systems at varying levels of abstraction.
5. A major project that requires integration and application of knowledge and skills acquired in earlier course work.

(b) Mathematics: At least 15 semester credit hours (or equivalent) that must include discrete mathematics and must have mathematical rigor at least equivalent to introductory calculus. The additional mathematics might include course work in areas such as calculus, linear algebra, numerical methods, probability, statistics, or number theory.

(c) At least six semester credit hours (or equivalent) in natural science course work intended for science and engineering majors. This course work must develop an understanding of the scientific method and must include laboratory work.

6. Faculty
Some full-time faculty members must have a Ph.D. in computer science.

PROGRAM CRITERIA FOR BACCALAUREATE **CYBERSECURITY** AND SIMILARLY NAMED COMPUTING PROGRAMS
Lead Society: CSAB
These program criteria apply to computing programs using cybersecurity, cyber operations, computer security, , information assurance, information security, computer forensics, or similar terms in their titles.

3. Student Outcomes
In addition to outcomes 1 through 5 graduates of the program will also have an ability to:

6. Apply security principles and practices to maintain operations in the presence of risks and threats. [CY]

5. Curriculum
The curriculum requirements specify topics, but do not prescribe specific courses. These requirements include:
(a) At least 45 semester credit hours (or equivalent) of computing and cybersecurity course work. The course work must cover:

1. Application of the crosscutting concepts of confidentiality, integrity, availability, risk, and 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 and 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 can broadly impact society as a whole.
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.

PROGRAM CRITERIA FOR BACCALAUREATE **INFORMATION TECHNOLOGY** AND SIMILARLY NAMED COMPUTING PROGRAMS
Lead Society: CSAB
These program criteria apply to computing programs using information technology or similar terms in their titles.

Definition
Information Systems Environment - An information systems environment is an organized domain of activity within which information systems are used to support and enable the goals of the activity.
Examples of information systems environments include (but are not limited to) business, health care, government, not-for-profit organizations, and scientific disciplines.

3. Student Outcomes
In addition to outcomes 1 through 5, graduates of the program will also have an ability to:

6. Support the delivery, use, and management of information systems within an information systems environment. [IS]

5. Curriculum
The curriculum requirements are in addition to the General Criteria curriculum requirements and specify topics, but do not prescribe specific courses.
These requirements are:

(a) Information systems: At least 30 semester credit hours (or equivalent) that include coverage of fundamentals and applied practice in application development; data and information management; information technology infrastructure; systems analysis, design and acquisition; project management; and the role of information systems in organizations.
(b) Information systems environment: At least 15 additional semester credit hours (or equivalent) of a cohesive set of topics that provide an understanding of an information systems environment.
(c) Quantitative analysis or methods that must include statistics.

6. Faculty
In addition to the General Criteria faculty requirements, some full-time faculty members, including those responsible for the information systems curriculum development, must hold a terminal degree with a program of study in information systems.

PROGRAM CRITERIA FOR BACCALAUREATE **INFORMATION TECHNOLOGY** AND SIMILARLY NAMED COMPUTING PROGRAMS
Lead Society: CSAB
These program criteria apply to computing programs using information technology or similar terms in their titles.

3. Student Outcomes
In addition to outcomes 1 through 5, graduates of the program will also have an ability to:

6. Use systemic approaches to select, develop, apply, integrate, and administer secure computing technologies to accomplish user goals. [IT]

5. Curriculum
The curriculum requirements are in addition to the General Criteria curriculum requirements and specify topics, but do not prescribe specific courses.

These requirements are:

(a) Information Technology: At least 45 semester credit hours (or equivalent) that must include:
   1. Fundamentals and applied practice in:
      a) information management
      b) integrated systems
      c) platform technologies
      d) system paradigms
      e) user experience design
      f) networking
      g) software development and management
      h) web and mobile systems
   2. Advanced and supplemental IT topics that build on fundamentals and applied practice to provide depth.
   3. Experiential learning appropriate to the program.
   4. Principles and practices of IT project management.
(b) Mathematics: At least six semester credit hours (or equivalent) of appropriate mathematical topics that includes relevant discrete mathematics.

Program Criteria: The Program Criteria above provide discipline-specific accreditation criteria for baccalaureate program. Programs must show that they satisfy all of the specific Program Criteria implied by the program title. Any overlapping requirements need be satisfied only once.

PROGRAM CRITERIA FOR **ASSOCIATE CYBERSECURITY** AND SIMILARLY NAMED COMPUTING PROGRAMS
Lead Society: CSAB
These program criteria apply to **associate computing programs** using cybersecurity, cyber operations, computer security, information assurance, information security, computer forensics, or similar terms in their titles.

Note. Criterion 3 and 5 listed below replace, not extend, Criterion 3 and 5 stated in the CAC General Criteria.

3. Student Outcomes

The program must have documented and publicly stated student outcomes that include (1) through (5) below. The program may define additional outcomes.

Graduates of the program will have an ability to:

1. Analyze a broadly defined security problem and apply principles of cybersecurity to the design and implementation of solutions.
2. Apply security principles and practices to maintain operations in the presence of risks and threats.
3. Communicate effectively in a variety of professional contexts.
4. Recognize professional responsibilities and make informed judgments in cybersecurity practice based on legal and ethical principles.
5. Function effectively as a member of a team engaged in cybersecurity activities.

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 to prepare students for a career and lifelong professional development in the cybersecurity discipline.

The program must include at least 30 semester credit hours (or equivalent) of up- to-date coverage that includes:

1. Application of techniques, skills, and tools necessary for cybersecurity practice.
2. Application of the crosscutting concepts of confidentiality, integrity, availability, risk, adversarial thinking and systems thinking.
3. Cybersecurity topics from each of the following areas:
   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 and 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.
4. Programming or scripting skills.
5. Advanced cybersecurity topics that build on the above crosscutting concepts and cybersecurity topics.

The program must ensure its students have the mathematical skills required for cybersecurity practice to meet its student outcomes and program educational objectives.