PCS Information and Computing Accreditation Board
COMPUTING ACCREDITATION COMMISSION
Side-by-side Comparison: Criteria of Accrediting CITE Programs
Series of 2014 (Version 1) vs Criteria, Series of 2018- 2019 (Version 2)
20 October 2018

GENERAL CRITERIA

INTRODUCTION	
CAC Criteria Currently in Use (Version 1)	**CAC Criteria for Use in 2018-2019 (Version 2)**
Introduction The remainder of this document contains three sections: • Section 1 describes definitions of terms used in the criteria contained in this document. • Section 2, General Criteria, describes general criteria that apply to all computing and information technology-related programs evaluated for accreditation by PICAB-CAC. • Section 3, Program Criteria, provides additional specific-program-based accreditation criteria. Every program accredited by PICAB-CAC must satisfy every criterion that is in the General Criteria, must satisfy the specific-program-based Program Criterion implied by the program title, and must conform to PICAB-CAC Policies and Procedures (as described in the PICAB Policies and Procedures Manual). In addition, the program must comply with relevant requirements of the Commission on Higher Education (CHED).	Introduction The remainder of this document contains three sections: • Section 1 describes definitions of terms used in the criteria contained in this document. • Section 2, General Criteria, describes general criteria that apply to all computing and information technology-related programs evaluated for accreditation by PICAB-CAC. • Section 3, Program Criteria, provides additional specific-program-based accreditation criteria. Every program accredited by PICAB-CAC must satisfy every criterion that is in the General Criteria, must satisfy the specific-program-based Program Criterion implied by the program title, and must conform to PICAB-CAC Policies and Procedures (as described in the PICAB Policies and Procedures Manual).

DEFINITIONS

CAC Criteria Currently in Use (Version 1)	CAC Criteria for Use in 2018-2019 (Version 2)
To avoid misunderstandings, PICAB-CAC shall, in its documents and operations, use the following definitions of terms and phrases that appear in Sections 2 and 3 **Higher Education Institution (HEI)** - A higher education institution is a provider of tertiary level education authorized to offer baccalaureate degree programs by the Commission on Higher Education (CHED) of the Republic of the Philippines.	To avoid misunderstandings, PICAB-CAC shall, in its documents and operations, use the following definitions of terms and phrases that appear in Sections 2 and 3 of PICAB Document No. 004 – Criteria for Accrediting CITE Programs. **Higher Education Institution (HEI**) - A higher education institution is a provider of tertiary level education authorized to offer baccalaureate degree programs by the Commission on Higher Education (CHED) of the Republic of the Philippines as evidenced by a Government Recognition from the CHED.
Information Technology Education (ITE) Program - An information technology education program is a baccalaureate degree program in a higher education institution (HEI) under the purview of the CHED Technical Panel for Information Technology Education (TPITE). At the present time (June 2014), these programs lead to the following degrees: Bachelor of Science in Computer Science, Bachelor of Science in Information Systems, and Bachelor of Science in Information Technology. Due to the fact that one of the programs uses *Information Technology* in its title, it has been suggested that instead of Information Technology Education Program, the better generic term to use in referring to this kind of program is *Computing Technology Education (CTE) Program* .	**Computing and Information Technology Education (CITE) Program** – A computing and information technology education program is a baccalaureate degree program in a higher education institution (HEI) under the purview of the CHED Technical Panel for Information Technology Education (TPITE). At the present time (September 2018), these programs lead to the following degrees: Bachelor of Science in Computer Science, Bachelor of Science in Information Systems, and Bachelor of Science in Information Technology. Due to the fact that one of the programs uses *Information Technology* in its title, to avoid confusion, PICAB-CAC will use *Computing and Information Technology Education (CITE)* in referring to the three programs collectively.
PICAB-CAC Accredited Program – A PICAB-CAC accredited program is a program in an HEI leading to a baccalaureate degree that has been evaluated and deemed to have satisfied all the general and applicable program-based criteria, the policies and procedures requirements of PICAB, and the relevant requirements of CHED. PICAB-CAC does not accredit individual graduates nor does it accredit organizational units of HEIs.	**PICAB-CAC Accredited Program** – A PICAB-CAC accredited program is a program in an HEI leading to a baccalaureate degree that has been evaluated and deemed to have satisfied all the general and applicable program-based criteria, the policies and procedures requirements of PICAB. PICAB-CAC does not accredit individual graduates nor does it accredit organizational units of HEIs.

DEFINITIONS	
CAC Criteria Currently in Use (Version 1)	CAC Criteria for Use in 2018-2019 (Version 2)
[No analog]	**Complex Computing Problems -** Complex computing problems include one or more of the following characteristics: involving wide-ranging or conflicting technical issues, having no obvious solution, addressing problems not encompassed by current standards and codes, involving diverse groups of stakeholders, including many component parts or sub-problems, involving multiple disciplines, or having significant consequences in a range of contexts.

CRITERION 2. STUDENT OUTCOMES

CAC Criteria Currently in Use (Version 1)	CAC Criteria for Use in 2018-2019 (Version 2)
The program must have documented student outcomes that prepare graduates to attain the program educational objectives. There must be a documented process for the establishment of the initial student outcomes and a documented process for the periodic review and possible revision of these student outcomes.	The program must have documented and publicly stated student outcomes that include one (1) through five (5) below and any outcomes required by applicable Program Criteria. The program may define additional outcomes. Graduates of the program will have an ability to: …
The program must enable students to attain, by the time of their graduation the following characteristics:	*["Must enable" language has been removed. Items below in Criterion 2 (Student Outcomes) are now student outcomes that must be assessed.]*
a. Ability to apply knowledge of computing, basic science, and mathematics appropriate to the discipline and the program educational objectives	*[Now incorporated into Criterion 3 (Curriculum), Paragraph 1]*
b. Ability to analyze a problem, and identify and define the computing requirements appropriate to the problem's solution	1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions;
c. Ability to design, implement, and evaluate the capability of a computer-based system, process, component, or program to meet desired needs	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;
d. Ability to function effectively on teams to accomplish a common goal	5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline;
e. Ability to understand professional, ethical, legal, security and social issues and responsibilities	4 . Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles; and
f. Ability to communicate effectively with a range of audiences	3. Communicate effectively in a variety of professional contexts;
g. Ability to analyze the local and global impact of computing on individuals, organizations, and society	*[Now incorporated into Criterion 3 (Curriculum), Paragraph 2, Item 3]*
h. Ability to recognize the need for and ability to engage in continuing professional development	*[Now incorporated into Criterion 3 (Curriculum), Paragraph 1]*
i. Ability to use techniques, skills, and tools necessary to current computing practice	*[Now incorporated into Criterion 3 (Curriculum), Paragraph 2, Item 1]*
A program may specify its own set of outcomes to ensure attainment of its program educational objectives, but the program's student outcomes must cover the above 9 characteristics.	A program may specify its own set of outcomes to ensure attainment of its program educational objectives, but the program's student outcomes must cover the above 5 characteristics.

CRITERION 3. CURRICULUM

CAC Criteria Currently in Use (Version 1)	CAC Criteria for Use in 2018-2019 (Version 2)
A program's curriculum must be aligned 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 and professional requirements with general education requirements to prepare students for a professional career and further study in the computing discipline associated with the program, and for functioning in modern society.	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.
For each course in the major required of all students, its content, expected performance criteria, and place in the overall program of study must be published.	*[Deleted]*
[No analog]	The curriculum requirements specify topics, tub do not prescribe specific courses. The program must include mathematics appropriate to the discipline and at least forty-five (45) semester credit hours (or equivalent) or up-to-date coverage of fundamental and advanced computing topics that provide both breadth and depth. The computing topics must include:
[From Criterion 2 (Student Outcomes) , Item (i)]	1. Techniques, skills, and tools necessary for computing practice;
[No analog]	2. Principles and practices for secure computing; and
[From Criterion 2 (Student Outcomes) , Item (g)]	3. Local and global impacts of computing solutions on individuals, organizations, and society.

CRITERION 9. PROGRAM IMPROVEMENT	
CAC Criteria Currently in Use (Version 1)	CAC Criteria for Use in 2018-2019 (Version 2)
Criterion 9. Program Improvement The program must periodically use documented processes for student outcomes assessment, student outcomes evaluation, program educational objectives assessment, and program educational objectives evaluation. The results of the SOEs must be utilized as input for the documented periodic program improvement process, particularly with respect to courses in the curriculum. PEOEs should be utilized as input to the periodic program improvement process. Other available information, as appropriate, may be used as input to total program improvement. The periodic assessment and evaluation of student outcomes and the periodic assessment and evaluation of program educational objectives are intended to progressively improve the degree of attainment of SOs and PEOs.	**Criterion 9. Program Improvement** The program must periodically use documented processes for student outcomes assessment, and student outcomes evaluation. The results of the SOEs must be utilized as input for the documented periodic program improvement process, particularly with respect to courses in the curriculum. Other available information, as appropriate, may be used as input to total program improvement. The periodic assessment and evaluation of student outcomes are intended to progressively improve the degree of attainment of SOs.

CRITERION 2. STUDENT OUTCOMES

CAC Criteria Currently in Use (Version 1)	CAC Criteria for Use in 2018-2019 (Version 2)
The program must require students to attain, by the time of their graduation:	In addition to outcomes one (1) through five (5), graduates of the program will also have an ability to:
j. 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 and applicable standards. [CS]	6. Apply computer science theory and software development fundamentals to produce computing-based solutions.
k. Ability to apply design and development principles in the construction of software systems of varying complexity, in accordance with applicable standards. [CS]	*[Now incorporated into CS Program Criteria, Criterion 3 (Curriculum), Paragraph (a), Item 4]* 4. The study of computing-based systems at varying levels of abstraction.

Computer Science Program Criteria

CRITERION 3. CURRICULUM	
CAC Criteria Currently in Use (Version 1)	CAC Criteria for Use in 2018-2019 (Version 2)
Students must have the following course work:	The curriculum requirements specify topics, but do not prescribe specific courses. These requirements are: (a) Computer science: at least forty-five (45) semester credit hours (or equivalent) of technical and professional topics must include:
1. Coverage of the fundamentals of algorithms, data structures,	1. Substantial coverage of algorithms and complexity, computer science theory, concepts of programming languages, and software development.
	3. Exposure to computer architecture and organization, information management, networking and communication, operating systems, and parallel and distributed computing.
2. A variety of programming languages and systems. [CS]	*[Incorporated into "concepts of programming languages" from CS Program Criteria, Criterion 3 (Curriculum), Paragraph (a), Item 1]*
3. At least one high level language. [CS]	2. Substantial coverage of at least one (1) general-purpose programming language.
4. Advanced course work that provides depth by building on fundamental course work. [CS]	*[Incorporated into General Program Criteria, Criterion 3 (Curriculum), Paragraph (b)]*
[Analog is in CS Program Criteria, Criterion 3, item (k)]	4. The study of computing-based systems at varying levels of abstraction.
[No analog in the criteria]	5. A major project requires integration and application of knowledge and skills acquired in earlier course work.
[No analog in the criteria]	6. Principles and practices for secure computing.
(b) Thirty (30) semester credit hours of basic science and mathematics:	*[This line removed; overall science and mathematics requirement reduced to provide increased overall curricular flexibility – see (b) and (c) below. Note the explicit credits required for science.]*

Computer Science Program Criteria

CRITERION 3. CURRICULUM	
CAC Criteria Currently in Use (Version 1)	CAC Criteria for Use in 2018-2019 (Version 2)
1. Mathematics: At least 15 semester credit hours that must include discrete mathematics. The additional mathematics might consist of courses in areas such as calculus, linear algebra, numerical methods, probability, statistics, number theory, geometry, or symbolic logic. [CS]	(b) Mathematics: At least fifteen (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, symbolic logic, or number theory.
2. Basic Science: A science component that develops an understanding of the scientific method and provides students with an opportunity to experience this mode of inquiry in courses for science or engineering majors that provide some exposure to laboratory work. The total semester credit hours in basic science plus mathematics must be at least 30. [CS]	(c) Natural Science: At least eight (8) 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.

CRITERION 5. FACULTY	
CAC Criteria Currently in Use (Version 1)	CAC Criteria for Use in 2018-2019 (Version 2)
6. Additional Faculty Requirements Some full-time faculty members must have a Ph.D. degree in a program of study essentially in computer science. Some research publications must be in computer science journals.	5. Additional Faculty Requirements Some full-time faculty must have PhD in Computer Science, or a doctoral degree provided that there is a track record of scholarly work of research articles and conference papers whose titles are in computer science fields.

Program Criterion for Information Systems

DEFINITIONS	
CAC Criteria Currently in Use (Version 1)	CAC Criteria for Use in 2018-2019 (Version 2)
This program criterion applies to ITE programs using *information systems* in their titles. [*"Information Systems Environment" is not explicitly defined in the criteria. It was defined in a separate document.*]	This program criterion applies to CITE programs using *information systems* in their titles. Definition: 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.

CRITERION 2. STUDENT OUTCOMES	
CAC Criteria Currently in Use (Version 1)	CAC Criteria for Use in 2018-2019 (Version 2)
The program must enable students to attain, by the time of their graduation:	In addition to outcomes one (1) through five (5), graduates of the program will also have an ability to:
(j) Understanding of, and ability to support, the use, delivery, and management of information systems within an Information Systems environment. [IS]	(6) An understanding of and an ability to support the use, delivery, and management of information systems within an Information Systems environment.

CRITERION 3. CURRICULUM .

CAC Criteria Currently in Use (Version 1)	CAC Criteria for Use in 2018-2019 (Version 2)
Students must have course work on:	The curriculum requirements specify topics, but do not prescribe specific courses. These requirements are:
(a) Information Systems: 30 semester credit hours that must include: 1. the fundamentals of application development, data management, networking and data communications, security of information systems, systems analysis and design, and the role of Information Systems in organizations. [IS]	(a) Information systems: At least thirty (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. *[Note: "Security of information systems" from the current criteria is now incorporated into General Criteria, Criterion 3 (Curriculum)]*
2. advanced course work to provide depth by building on fundamental course work. [IS]	*[Now incorporated into General Criteria, Criterion 3 (Curriculum)]*
(b) Information Systems Environment: 15 semester credit hours of course work that must include a cohesive set of topics that provides an understanding of an environment in which information systems will be applied professionally. [IS]	(b) Information systems environment: At least fifteen (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, including statistics. [IS]	(c) Quantitative analysis or methods that must include statistics.
	(d) Principles and practices for secure computing.

CRITERION 5. FACULTY

CAC Criteria Currently in Use (Version 1)	CAC Criteria for Use in 2018-2019 (Version 2)
6. Additional Faculty Requirements Some full-time faculty members, including those responsible for IS curriculum development, must hold a terminal degree in a program of study and research in information systems.	**5. Additional Faculty Requirements** Some full-time faculty members, including those responsible for IS curriculum development, must hold a terminal degree in a program of study that includes computing and information technology, and current research and other scholarly activities that include information systems topics.

Program Criterion for Information Technology

CRITERION 2. STUDENT OUTCOMES	
CAC Criteria Currently in Use (Version 1)	CAC Criteria for Use in 2018-2019 (Version 2)
The program must require students to acquire, by the time of their graduation:	In addition to outcomes one (1) through five (5), graduates of the program will also have an ability to:
j. Ability to use and apply current technical concepts and practices in the core information technologies: human computer interaction, information management, programming, networking, and web systems and technologies. [IT]	*[Now incorporated into IT Program Criteria, Criterion 3 (Curriculum)]*
k. Ability to identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems. [IT] l. Ability to effectively integrate IT-based solutions into the user environment. [IT]	6. Identify and analyze user needs and to take them into account in the selection, creation, integration, evaluation, and administration of computing-based systems.
m. Ability to understand best practices and standards and their application. [IT]	*[Now incorporated into General Criteria, Criterion 3 (Curriculum), Item 3]*
n. Ability to assist in the creation of an effective project plan. [IT]	*[Now incorporated into General Criteria, Criterion 2 (Student Outcomes), Outcome 5]*

CRITERION 3. CURRICULUM	
CAC Criteria Currently in Use (Version 1)	CAC Criteria for Use in 2018-2019 (Version 2)
Students must have 45 semester credit hours of course work that includes: (a) Fundamentals of	The curriculum requirements specify topics, but do not prescribe specific courses. The curriculum must include coverage of fundamentals and applied practice in the following:
2. Information assurance and security. [IT]	*[Now incorporated into General Criteria, Criterion 3 (Curriculum)]*
[Previously included in IT Program Criteria, Criterion 3]	a. The core information technologies of human-computer interaction, information management, programming, web systems and technologies, and networking.
3. System administration and maintenance. [IT]	b. System administration and system maintenance.
4. System integration and architecture. [IT]	c. System integration and system architecture.
(b) Advanced course work to provide depth by building on fundamental course work. [IT]	*[Now incorporated into General Criteria, Criterion 3 (Curriculum)]*