CAE2Y : How did it happen?

The twenty-four CAE2Y community colleges are proud to have acquired this designation, and happy to be recognized in the national cyber-security arena. Yet, only a few years ago the CAE2Y was a distant dream. How did it happen?

In 2005 when CyberWatch came into existence, there was no CAE designation for two-year institutions. The number of community colleges that had a strong two-year degree in IA/IS was very small. Even smaller was the number of community colleges with CNSS certifications, 10 total (5 with 4011 and 5 with more than one certifications). A meeting in Spring 2006 with representatives from the National Security Agency (NSA), the Department of Homeland Security (DHS), and the National Science Foundation (NSF) three community college presidents, one four-year institution president and others was a major disappointment, with these major stakeholders taking a position opposed to a formal CAE-type designation.   With such auspicious beginning, it did not appear that we would succeed in the foreseeable future. Three years later at the CISSE conference in Seattle in June 2009, the three working sessions focused on the CAE for two-year institutions supported by NSF, were standing-room only, with active participation that underscored the interest in, and need for a CAE designation. Very quickly after the CISSE conference the criteria were developed, the process established and in 2010 the CAE2Y became a reality with the first 6 community colleges receiving the coveted CAE2Y designation. Today there are 50 community colleges with CNSS certifications (21 with 4011 and 29 with more than one certifications), and 13 CAE2Y institutions with 16 additional community colleges now eligible for the CAE2Y status.

Becoming a Center of Academic Excellence 2-Year (CAE2Y) is still a new reality and a great opportunity for community colleges. This institutional award was established by NSA and DHS with the support of NSF and CyberWatch. Community colleges that have established a robust information assurance (IA) program, and have successfully mapped their security courses to two of the Committee on National Security Systems training standards, CNSS 4011 and one other, are now eligible to apply for the coveted status of CAE2Y.

The four NSF supported ATE centers in cybersecurity, CyberWatch at Prince George's Community College, Maryland, Center for Systems Security and Information Assurance (CSSIA) at Moraine Valley Community College, Illinois, Cyber Security Education Consortium (CSEC) at the University of Tulsa, Oklahoma and the newest one, CyberWatch West at Mt San Antonio College, California are actively assisting their community college members in strengthening their programs, acquiring the CNSS certifications, and applying for the CAE2Y status.

Why should you aspire to the CAE2Y status? The application demands investment of time and effort – so why do it? Here is the answer in terms of external and internal benefits: recognition of your IA/IS program by industry, professional associations, and academe; improved program articulation with CAE universities; better job placement and/or transfer opportunities for students; opportunities for collaboration with other CAE2Y and CAE institutions; improved institutional standing in the local, regional, and professional community; opportunities for institutional/program marketing; and monetary support; enhanced support for your program by the administration; and enhanced internal recognition of your program.

We thank the National Science Foundation for its continued support of the growth and strengthening of cyber-security programs at community colleges, and the National Security Agency and the Department of Homeland Security for their efforts on the development and establishment of the CAE2Y designation.   The CAE2Y program is strengthening not only the IA programs at two-year institutions, but our future workforce, and ultimately, our nation.

What the CAE2Y Designation means to Hagerstown Community College

In preparation of my presentation, "Discovering the Benefits of Earning the National Center of Academic Excellence in Information Assurance 2 Year Education (CAE2Y) Designation" for the League of Innovation Conference I reviewed my association with the NSF CyberWatch Consortium. The association with this consortium assisted my faculty in producing a new program that has not only rejuvenated our Information Technology program of study but has brought hope to students who want to work in the IT field, now with the promise of jobs in information assurance. The association with CyberWatch offered our faculty the opportunity of graduate education in Information Assurance, workshops that address cyber defense skills, and the opportunity to network with other community colleges that are undergoing the same transformation. As you well know, the faculty is the keystone to education. One of the benefits of making professional development a priority for faculty at the community college level is that through this expertise there is the assurance that career pathways will be created for students beginning at the secondary level up through to the four year level of education. Creating the connection among the levels is a skill area where the community college is quite adept.

Every moment of the journey to the CAE2Y designation was a learning moment for us, and a teaching opportunity for the National Security Agency. This agency developed the requirements that must be obtained for the designation. The pre-requisites required of the CAE2Y application are the successful mapping of program objectives to the Information Systems Security Professionals, NSTISSI No. 4011 and Systems Administrators, CNSSI No. 4013E standards. We appreciated this process as it provided structure for the program and allowed us to fully examine our new curriculum.

The application for the CAE2Y designation forced us to examine many processes and segments of our campus. The investigation required us to gather data, reach out to other divisions on campus, examine the colleges' strategic plan, create additional articulation agreements, and examine security practices in the IT division. Among many discoveries, we learned that many courses throughout the campus address the importance of secure data and that many institutions were eager to create articulation agreements with this program.

The journey to becoming a CAE2Y was enjoyable. We enjoyed the excitement of creating a program that provides workers with skills critical to the security of the nation, we enjoyed state of the art education in a new skill area where we were awarded a sense of achievement, and we enjoyed the creation of a new network of professionals. The designation has also become rewarding.

The CAE2Y designation has allowed us the privilege of receiving two NSF cyber related grants. Currently we are in year one of the grant process. Our mission includes a campaign to heighten the awareness of cyber security in our community. We have created a Cyber Security Institute that will assist accomplish this mission by offering mini-courses, workshops, and IA related boot camps. The creation and offering of these events is housed in the Continuing Education division of the College. Recently we produced a panel discussion event, through our local Chamber of Commerce.

This breakfast event showcased four IA professionals from the community who shared the importance of cyber security in their organization. We feel that the mission to disseminate the importance of computer security can be appreciated by many segments of the population. Therefore by recognizing that users of iPhone and iPads have a need to be secure, we offered a workshop that shared methods of staying secure in the handheld computer environment.

As grant recipients we have been afforded the opportunity to enhance our cyber classrooms through the creation of a penetration testing laboratory. In this space students will be able to learn how to defend and protect servers. This space will be available for all types of cyber training. To assist us with lab operations we have hired two Recruitment Specialists/Lab Technicians. Yes, these employees will be tasked with the penetration laboratory operations as well as recruiting students into the program. They will make presentations to students in secondary schools in the three state areas, Maryland, Pennsylvania, and West Virginia. They will also visit local businesses to inform them that cyber education opportunities for their employees can be found on our campus. To-date three school districts have toured our facilities and learned about the importance of a secure computing environment.

As our curriculum has developed, our need for another full-time Information Assurance instructor was created. This position will be partially grant funded for three years. This new personnel will allow us to continue the development of this new curriculum and outreach to the community.

By now, you should have the sense that armed with the proper education and professional knowledge we have found great success and we are growing at a rapid pace. We are not at a loss for professional guidance as networks of professionals are always ready to assist us. We are grateful for our relationship with CyberWatch, the National Centers for Academic Excellence, the Colloquium for Information Systems Security Education and the National Science Foundation for support and guidance.

CAE2Y .NEWS

NEW!
Volume One
JUNE 2012

NSF ATE Cybersecurity Centers	CyberWatch :: MD cyberwatchcenter.org	CyberWatch West :: CA cyberwatchwest.org	CSSIA :: IL cssia.org	CSEC :: OK cseconline.org

An Open Letter to the Community College IA Community

It hardly seems possible that 10 years have sped by since January, 2003 when the 2-year A.S. degree program in Computer Security was launched at Norwalk Community College (Norwalk, Connecticut), where I was serving as Director of the Center for Information Technology at the time.

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What is CAE2Y?

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IACE :: CNSS News

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2010 CAE2Y Institutions ::

Anne Arundel Community College - Maryland

Hagerstown Community College - Maryland

Moraine Valley Community College - Illinois

Oklahoma City Community College - Oklahoma

Prince George's Community College - Maryland

Rose State College - Oklahoma

2011 CAE2Y Institutions ::

College of Southern Maryland - Maryland

Community College of Baltimore County - Maryland

Erie Community College - New York

Inver Hills Community College - Minnesota

Owens Community College - Ohio

Richland College - Texas

Whatcom Community College - Washington

2012 CAE2Y Institutions ::

Bossier Parish Community College - Louisiana

Frances Tuttle Technology Center - Oklahoma

Harford Community College - Maryland

Ivy Tech Community College - Indiana

Jackson State Community College - Tennessee

Minneapolis Community and Technical College - Minnesota

Montgomery College - Maryland

Oklahoma Department of Career and Technology - Oklahoma

Sinclair Community College - Ohio

Snead State Community College - Alabama

Valencia College - Florida

PRINCE GEORGE'S COMMUNITY COLLEGE

NSF

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O nly six community colleges became CAE2Y institutions in 2010. Severn more were awarded this designation in 2011, and eleven more in 2012, for a total of 24 CAE2Y institutions. The benefits to a CAE2Y institution are significant: recognition of the quality of the program by industry, professional associations, and academe; seamless program articulation with CAE universities; better job placement and/or transfer opportunities for students; opportunities for collaboration with other CAE2Y and CAE institutions; improved institutional standing in the local, regional, and professional community; opportunities for institutional/program marketing; and monetary support.

Community colleges can be assisted in their quest to map their courses to the CNSS standards by one of the three NSF supported ATE centers devoted to information assurance education:

CyberWatch at Prince George's Community College, Maryland; Center for Systems Security and Information Assurance (CSSIA) at Moraine Valley Community College, Illinois; and Cyber Security Education Consortium (CSEC) at the University of Tulsa, Oklahoma. Not coincidentally, every one of the six CAE2Y institutions designated in 2010 is affiliated with one of these centers. CyberWatch has also assumed a special leadership role in developing and promoting the CAE2Y Program, and in mentoring 2-year institutions who wish to apply.

The CAE2Y designation represents an expansion of the Centers for Academic Excellence in Information Assurance Education (CAE/IAE) program previously established for four-year schools. This program recognizes excellent academic education programs (CAE) and excellent research programs (CAE-R).

:: More information about the **CAE program**:
Send an inquiry to askCAEIAE (at) nsa.gov

:: More information about the **CAE2Y program specifically**:
Email askCAE2Y (at) nsa.gov

:: More information about the **CAE2Y mentoring program**:
Contact Dr. Vera Zdravkovich at vzdravkovich (at) cyberwatchcenter.org.

IACE :: CNSS News

The Information Assurance Courseware Evaluation (IACE) website application is now located at https://www.iad.gov/nietp/ . Institution accounts have been established for all institutions possessing an unexpired CNSS certificate. The institution's current point of contact (POC) and data entry assistants will need to create their own user accounts for access to the new website. Since the old/new IACE website applications were not compatible, a new link called "Submission History" was established. This link displays an overview of the previous CNSS standards mapped/recertified and any CAE designation/re-designations achieved. It also includes a .pdf for each mapped standard. This .pdf contains a list of the courses previously used to map, followed by a list of the elements/the corresponding course(s) mapped to the element. This maintains a record of the course each element was originally mapped/verified to.

To establish a new institution account, you must still send an email to askIACE@nsa.gov containing the following information:

Institution name (as it will appear on the application). Institution point of contact (POC) (first name, middle initial, last name). An email address and telephone number for the POC

T he main difference in the IACE mapping process itself is that you must now enter all of your course information before you can begin entering the mapping justifications. As you map each element, the course topics/objectives you have already entered appear as a dropdown list from which you can select those that are appropriate. There is also an area for comments to expand/clarify if needed.
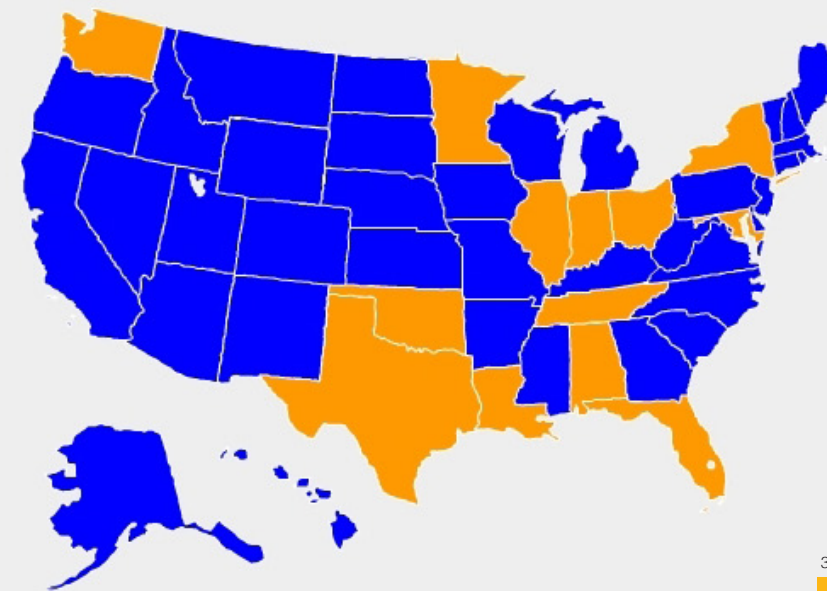
The CNSS Instructions are currently being revised. Once the new instructions are finalized, there will be an overlap period between the 4011-16 instructions and the new instructions. The NIETP will collaborate to develop the future path for curriculum prerequisites, especially as they apply to the NSA/DHS National Center of Academic Excellence programs.

The CAE Principals Meeting will be held November 11-13, 2012 in Atlanta, Georgia.

:: For those who plan to map and apply for CAE in the SAME year, the deadline to meet the CAE mapping prerequisite is July 31st.

:: If you want to apply for CAE in 2013, but haven't mapped your courseware yet, you must submit your mapping no later than 11:59PM EDT on July 31, 2012. This is to give IACE reviewers time to approve/verify mapping as it is a prerequisite to apply for 2y/4y CAE in IA Education.

:: If you just want to get just the mapping portion done this year, the deadline to submit mapping is 11:59PM EST on January 15, 2013.

Bar chart: CNSS Mappings 2003-2012

Year	CNSS 4011	CNSS 4011+1 or more	New
2003	1		
2004	1		
2005	10	5	10
2006	18	7	7
2007	29	7	11
2008	31	6	2
2009	31	8	2
2010	36	10	8
2011	46	22	7
2012	56	32	6

An Open Letter to the Community College IA Community

It hardly seems possible that 10 years have sped by since January, 2003 when the 2-year A.S. degree program in Computer Security was launched at Norwalk Community College (Norwalk, Connecticut), where I was serving as Director of the Center for Information Technology at the time. Information Assurance degree programs were in their infancy and 2-year A.S. degree programs in computer security just did not exist. We've come a long way since then, aided by proponents at 4-year and graduate institutions, government and business sectors, and visionaries at the 2-yr level.

A fter seeing my own college's 2-year program launched, I had the good fortune, and frankly, the personal mandate to assist other 2-year institutions in developing their own programs. Realizing that "one size fits all" was not a prudent approach during the early days, those involved in degree development took on the mantra of either "adapt or adopt". This served to accelerate program development instead of locking it into a set of rigid content. However, when the IA community started to see results, measured in an increased number of IA/security programs and matriculated students, other issues associated with this growth needed to be addressed, paramount of which was some level of standardization.

As one of those on the "bleeding edge" of computer security program development, I was also fortunate enough to have my school's application to the NSF receive funding, for continuing the security program's development, creating faculty IA development strategies, and generating outreach activities aimed at educating the public in security awareness. The NSF National Visiting Committee (NVC) for the grant, made up of practitioners and professors deeply steeped in IA, were immensely helpful and provided mentoring for me and guidance for the program. What I learned from these professionals I called into practice when I was subsequently asked to serve as a members of the NVCs for the first two regional security center grants (CSSIA and CyberWatch) issued to 2-year colleges.

The advent of these two regional NSF centers was really the launch-point for phenomenal growth in 2-year IA programs within the past five years. With leadership that understood collaboration, partnership development with 4-yr and research institutions and the business community, and utilizing a "win-win" strategy, these centers have been the enablers of dozens of schools, assisting them in all phases of program and faculty development in the IA arena. Additional NSF centers are now also in the mix, each adding their specialty to the IA space.

The next milestone for 2-yr IA programs was the development of NSA's CAE2Y program, which provided the framework for measuring curriculum content and a school's depth in and commitment to IA, culminating in the awarding of this most coveted designation. While it still can be argued that the mapping standards, which serve as the qualifier for CAE2Y applicants, lean heavily on government IA needs, nonetheless it does provide a standards-based criteria against which a program can be measured.

As for the future, the IA career space will most assuredly continue to sort itself out. Since we live with perpetual change and development of technology, new areas for IA concentration will constantly emerge, necessitating adaption of our various IA programs and additional training for our faculty.

What an exciting ten years it has been! For all our current IA practitioners at 2-year and technical schools, I thank you for your involvement in the IA careers area and your dedication to developing the technical, security-savvy workforce that is so desperately needed in our country.

:: **You're now creating the next ten years of IA history!**

Barbara J. Huffman de Belon, Ed.D.
Secretariat, The Colloquium for Information Systems Security Education
Principal, Belon Research & Practice