

The Role of NSF Advanced Technological Education Centers in National Cybersecurity Education Efforts

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Today's TRK2 Thread:

Community College Initiatives in Cybersecurity Education

- Coordination of community colleges' efforts across the nation
- Innovative curricula and coverage of leading-edge topics at the community college level
- Standardizing curricula within the NICE Framework
- Designations of excellence for community college programs
- Articulation of two-year and four-year programs to promote student transfer
- Development of "stackable certificates" and bachelor's degree programs at community colleges
- Use of virtualization technology for labs and competition environments



CyberCorps[®]: Scholarship for Service (SFS)

Capacity Building Track

Advanced Technological Education (ATE)



Advanced Technological Education (ATE)

- Education (degree programs, not “training”) of technicians in high-tech fields (IT, biotech, chemical tech, engineering tech, manufacturing, etc.)
- Goal: High-quality technician workforce
- Community colleges have leadership role
- Partnerships involving CCs, secondary schools, 4-year colleges and universities, business/industry, and government
- Annual budget around \$60M
- More info: <http://www.nsf.gov/ate>



Scale of ATE grants

- ❖ “Centers” ~ \$1M/year
- ❖ “Projects” ~ \$100k–\$900k/year

Activities

- ❖ Development of materials, labs, courses, curricula, programs (degrees and certificates)
- ❖ Professional development for faculty
- ❖ Transfer agreements with 4-year colleges/universities
- ❖ Internships for students
- ❖ Mentoring of other CCs to develop new programs
- ❖ K-12 curricula and outreach (students, teachers, counselors, parents)
- ❖ Student competitions (Cyber Defense, Digital Forensics Challenge)
- ❖ Cybersecurity awareness in communities



ATE Centers for Cybersecurity Education

- Ctr. for Systems Security & Info. Assurance (CSSIA)
 - ❖ Moraine Valley CC (IL) and partners
 - ❖ www.cssia.org
 - ❖ Established in 2003
- Cyber Security Education Consortium (CSEC)
 - ❖ University of Tulsa, Oklahoma *CareerTech*, and partners
 - ❖ www.cseconline.org
 - ❖ Established in 2004
- CyberWatch West
 - ❖ Mt. San Antonio College (CA) and partners
 - ❖ cyberwatchwest.org
 - ❖ Established in 2011

and →



- CyberWatch

- ❖ Prince George's CC (MD) and partners
- ❖ www.cyberwatchcenter.org
- ❖ Established in 2005
- ❖ Re-funded as *National Center* in 2012





Who We Have Been

- ▶ National Science Foundation (NSF) Advanced Technological Education (ATE)–funded cybersecurity education consortium
- ▶ **Mission:**
 - Increase the quantity and quality of the cybersecurity workforce



CyberWatch Goals

- ▶ Curriculum Development
- ▶ Faculty Development
- ▶ Student Development
- ▶ K-12 Initiatives
- ▶ Dissemination and Outreach
- ▶ CAE2Y



The Power of the CyberWatch Network

- ▶ 50+ two-year schools
- ▶ 50+ four-year institutions...in 33 states
- ▶ 30+ industry partners
- ▶ 3 government partners
- ▶ 6 public school systems
- ▶ 2 non-profit organizations



National CyberWatch Center

- ▶ NSF National ATE Cybersecurity Center:
 - “*National CyberWatch: Cybersecurity Education Solutions for the Nation*”



National CyberWatch Center

▶ **Mission:**

- Leading collaborative efforts to advance cybersecurity education and strengthen the national cybersecurity workforce



National CyberWatch Center

▶ Roles:

- Advocate
- Builder
- Collaborator
- Coordinator
- Promoter



National CyberWatch Center

▶ Goals:

- Build a culture of collaboration
- Build program/faculty capacity based on models of excellence



National CyberWatch Center

- ▶ **Goals (con't):**
 - Build and strengthen student capacity and expand career pathways
 - Advance research in cybersecurity education



National CyberWatch Center

- ▶ **Advancing research in cybersecurity education**
 - Produce research that critically examines cybersecurity education and workforce development efforts
 - Facilitate collaborative research efforts and help to infuse a research mindset across the educational activities of National CyberWatch, other NSF-funded cybersecurity centers, and member institutions



National CyberWatch Center

- ▶ Establish National CyberWatch as a research dissemination hub
- ▶ Inform policy and practice
- ▶ Lead efforts to develop national models of cybersecurity education and workforce development programs

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