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
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
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
Roles:
- Advocate
- Builder
- Collaborator
- Coordinator
- Promoter
Goals:
- Build a culture of collaboration
- Build program/faculty capacity based on models of excellence
Goals (con’t):
- Build and strengthen student capacity and expand career pathways
- Advance research in cybersecurity education
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
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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