Broadening Participation in Cybersecurity

NSF Awards #DUE-1140864, #DGE-1438861, #DGE-1303441

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Broadening Participation

- Teaching Cybersecurity as part of the mainstream Computer Science (CS) education
- Increasing women’s representation in Cybersecurity

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Security Conscious CS Workforce

• Security consciousness is an essential skill set for IT workforce today
  – Majority of financial losses are caused by security incidents attributed to non-malicious actions by “insiders”

• Most institutions do not offer mandatory security course in their CS curriculum
  – ACM/IEEE-CS Computer Science Curriculum 2013 identified Information Assurance and Security (IAS) as new knowledge area (KA)
  – www.cs2013.org

• SecKnitKit and CReST are efforts to address this issue and more

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Security Knitting Kit ToolBox
(Security Content for Non-Security CS Courses)

Knowledge Component

Class Slides with Notes
Exam/Quiz Q&A
Homework Assignments & Solutions

Active Learning
Collaborative Learning

Problem Solving
Critical Thinking

Protection

Pre and Post Course Questionnaire
Deployment Questionnaire
Self-Assessment Questionnaire

Assessment Component

Both Knowledge and Assessment Component

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SecKnitKit and CReST Progress

- 20+ security modules for 4 different CS courses
- Institutionalized at TTU
- Larger scale deployment through CReST
  - 5 Workshops for 60+ CS faculty across nation
  - 3 CReST workshops underway within an year
  - More to follow

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Why Diversity

• Diverse workforce performs better
• While women are 50% of US workforce
  – 25% of IT workforce is women
  – 8 to 11% of cybersecurity workforce is women

• WiCyS (Women in Cybersecurity) is an effort to help in recruitment, retention and advancement of women in cybersecurity
WiCyS Features

- Connecting mentor and mentees
  - 50% students, 25% educators, 25% professionals
- WiCyS scholarships include registration, lodging and meals
- Parallel tracks in education, research and industry
- Workshops, technical sessions, poster competitions, career/grad school fair

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WiCyS 2014 Conference

• Held in Nashville, TN, April 11-12, 2014
WiCyS 2015 Conference

- Held in Atlanta, GA, March 27-28, 2015
WiCyS 2016

• To be held in Dallas, TX
• March 31-April 2, 2016
  – Scholarship application open
  – Call for participation open

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More Information @

• Security Knitting Kit Project
  – www.secknitkit.org

• CReST Project
  – www.crest4cs.org

• WiCyS Project
  – www.wicys.net

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