



Information Assurance – A Technology Transfer Success Story

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Outline

- Introduction
- Educational Material Exchange
- Adoption and Adaptation
- Curriculum Development
- Committee on National Security Systems Mapping
- Research Activation
- Lessons Learned
- Future Directions

Introduction

- Global prominence of Cyber Security and Information Assurance
- Commensurate funding levels: US budget \$5.6 billion for FY05; +27% by 2009
- Impact on GDP - over \$17 billion in 2001; \$45 billion in 2006
- National need for professionals and diverse participation

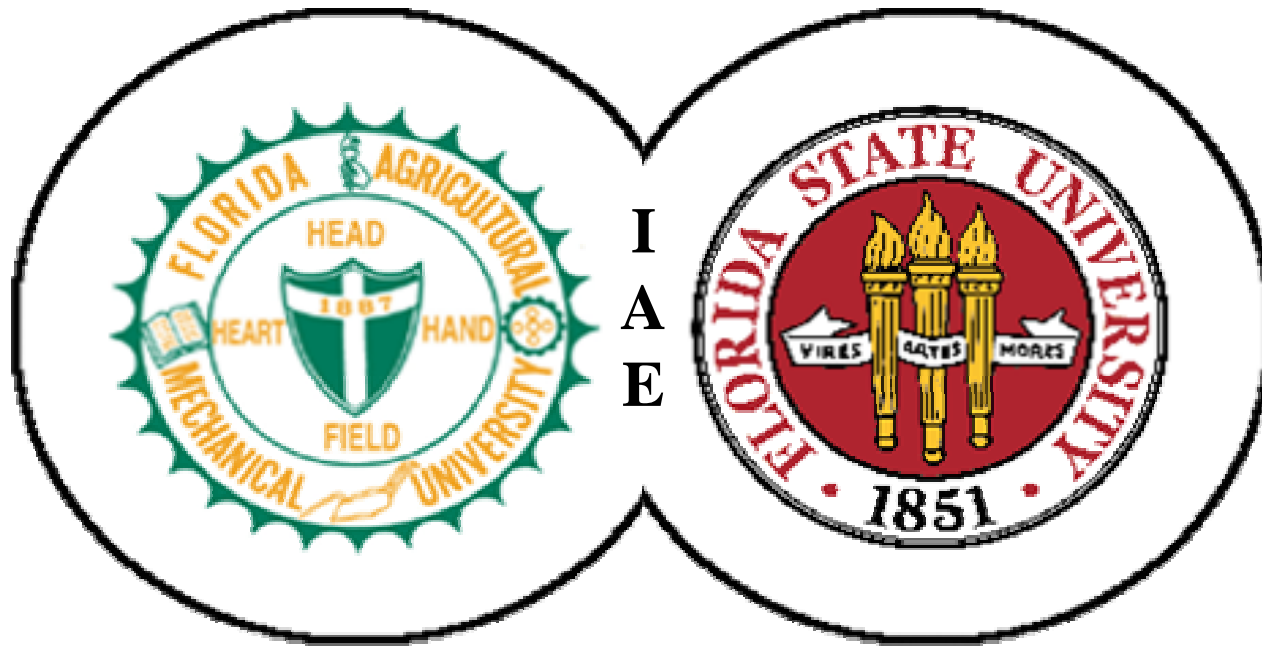
Introduction

- Florida Agricultural & Mechanical University (FAMU) is a premier HBCU's
- 13,000 students, 95% African- American
- Department of Computer and Information Sciences -- 400 undergraduate students, 20 graduate students
- Opportunity for cross-disciplinary programs

Introduction

- FAMU the lead institution in 11 member State University System of Florida Consortium on Homeland Security
- Consortium was established to foster collaborative efforts in research and development
- The FAMU Office of National Security Initiatives spearheads academic efforts related to homeland security

Information Assurance Education





Educational Material Exchange

- Capacity Building Proposal Submission - 12/02
- Capacity Building Awarded – 09/03
- FSU shared course materials
 - Lecture notes
 - Exams
 - Textbooks
 - Lab exercises

Adaptation and Adoption

- Three courses
 - Served as model for content and sequence
 - Exam style
 - Lab exercises
- Lab environment
 - Blueprint for network configuration
 - Funding resources
 - Technical support

Adaptation and Adoption

- Initially offered as Special Topics
- University approval for new courses – Summer 2004
- First offering – Fall 2004
 - Computer Security (CIS 4360)
 - Network Security (CIS 4362)
- First offering – Spring 2005
 - Applied Security (CIS 4361)

IA Curriculum

- Driven by CNSS mapping
- Two existing courses
 - COP 3530 - Data Structures
 - CDA 4503 - Data Communication and Organizational Networks
- Three new courses
 - CIS 4360 – Introduction to Computer Security
 - CIS 4362 – Network Security and Cryptography
 - CIS 4361 – Applied Security



Introduction to Computer Security

■ Course Topics

- Fundamental concepts such as, confidentiality, integrity, and availability (CIA)
- Fundamental challenges of computer security
- History of computer security

■ Instructional Methodology

- Class lecture and discussion based on assigned text and outside resources
- Research projects on various IA topics



Network Security and Cryptography

■ Course Topics

- Attack methods such as DoS, malicious code
- Basic concepts of cryptography such as algorithms, mechanisms, and protocols
- Access control methods

■ Instruction Methodology

- Lectures/Discussions conducted by student groups
- Research papers on various IA topics



Applied Security

■ Course Topics

- Security framework for an organization
- Evaluation of Security Tools
- User Level Security/OS Security
- Vulnerability testing

■ Instructional Methodology

- Group discussion based on assigned reading
- Group related projects such as labs and presentations

CNSS Mapping

- FSU provided previous mapping materials
- Liaison provided insight to the process
- 4011 – INFOSEC Professional
- 4014 – Information Systems Security Officer (ISSO)
- Official Award Ceremony – 9th Colloquium for Information Systems Security Education (June 2005)

CNSS Mapping



Research Activation

■ Awarded

- Capacity Building I (NSF) – Fall 2003
- CISCO Equipment Grant – Fall 2004
- Security and Mobile Agents (ARO) – Fall 2004
- MII (NSF) – Fall 2004

■ Submitted/Declined

- Capacity Building II (NSF)
- Software Engineering for Secure Software (ARO)

Research Activation

- FAMU Security Research Group
 - Late Fall 2004
 - Undergraduate focus, graduate student led
 - Bi-weekly meetings
 - Attend FSU research meetings
 - 3 papers
 - Pipeline for graduate study (Capacity II)

Research Activation



Lessons Learned

- Location, location, location!!!
- Willingness to share
 - Course materials
 - Lab technical support
 - Course mapping liaison
 - Funding connections
- Satisfied need for elective courses (right courses at the right time)
- People
 - Christy Chatmon – faculty member/doctoral student
 - Chris Moss – FAMU graduate student/FSU graduate courses
- Participation in the IA community

Future Enhancements

- Formal recognition of FAMU Center for Secure Computing and Information Assurance (FSCIA)
- CAEIAE status
- Pipeline : Undergraduate to Doctoral
- Additional hands-on laboratory exercises
- Guest speakers for selected course topics
- One-hour workshops for campus-wide audience to be given by Applied Security student groups
- Graduate IA courses

Questions

