

An Undergraduate Security Curriculum

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About myself

- Assistant Professor at UCF
- Research includes
 - Correlation of distributed network sensors
 - Law enforcement data sharing network



University of Central Florida

- Established in 1963
- Part of the Florida State University System
- Located 13 miles east of Orlando
- 42,837 Students
- 5,500 in Engineering and Computer Science



Information Systems Technology

- IST
 - Undergraduate program in the College of Engineering
 - Applied Engineering Degree
 - Heavy concentration of hands-on learning, real-world applications & experience



The Challenge

- Industry demand for trained security personnel
- Traditional Computer Science/Engineering degrees do little to prepare someone to be a security professional
- Our (attempt at a) solution
 - Develop a well rounded security program
 - Teach the “security mindset”
 - Get out of the books and on the networks



The Fundamentals

- Program is part of the College of Engineering
 - Analytical problem solving background
 - Ability to break down problems
 - Design of large scale systems and solutions
- During first two years, students are encourage to pursue various certifications
 - General alphabet soup of certificates
 - Concentration on network administration

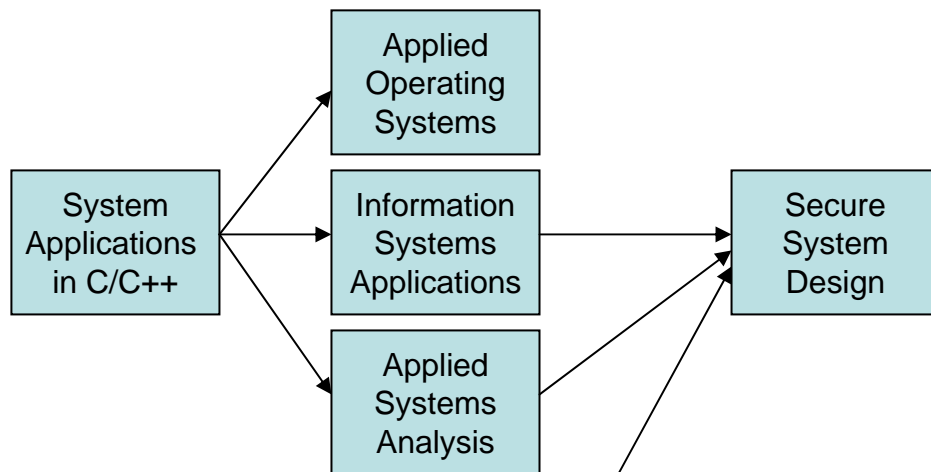


The Fundamentals

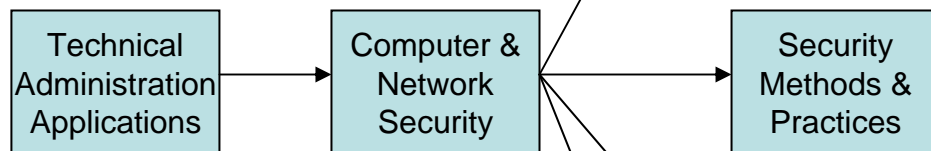
- Program breaks down into four tracks
 - Security core
 - Firewall, IDS, & Forensics
 - Secure system development
 - Other topics
- Focuses on all aspects of security, not just computer and network
 - Ties in with Criminal Justice Department and the College of Health and Public Affairs



Secure System Development



Security Core



Firewalls, IDS, Forensics



Other Topics



Security Core

- Background
 - Network Administration
 - Linux/UNIX administration
 - Programming Theory
 - Operating System Theory
- Courses
 - Technical Administration Application
 - Computer and Network Security
 - Security Methods and Practices
- Targets students for CISSP certification



Firewalls, IDS, and Forensics

- Goal
 - Designing secure and reliable network environments
- Background
 - LAN / WAN Design (3 course series)
- Courses
 - Applied Defense Strategies
 - Investigative Digital Forensics



Secure System Development

- Background
 - C/C++ development
- Courses
 - Applied Operating Systems
 - Information Systems Applications
 - Applied System Analysis (Software Engineering)
 - Secure System Design



Other Topics

- Catch-all for other areas
 - Current Topics
 - Security Sensors and Biometrics
 - Computer Security Management
 - Legal and Ethical Aspects of Security
 - Other Criminal Justice Courses
 - Public Safety and Security



What is special about this?

- National Center for Forensic Studies
 - NCFS : Located in UCF's Research Park
 - Digital Forensic Research Center
- Public Safety Technology Center
 - Criminal Justice security research center
- Hands on approach



What is special about this?

- High degree of interaction between courses
 - Students in the App. Def. Strategies courses build systems that students in the computer network and security course attempt to break into while students in the IDS and forensics courses attempt to determine what is going on....
- This hands on approach is the cornerstone of our program



Why am I here

- My goal in giving this presentation is to get feedback
 - What do you think needs to be in such a program?
 - What do you think we are doing wrong?
 - What do you think we are doing right?
 - What would you want out of a similar program?

