

Updates

ISLE
CAE
Competition

Status of the ISLE

- Located at Torrey Pines data center
- Managed by NU IT and SETM Lab Manager
- Major hardware upgrade
- Requested help desk ticketing system
- Working on
 - Lab standardization and alignment
 - Lab workflows
 - Automation

Status of CAE

- Achieved designation this year
- Great team effort
 - Advisory council
 - Faculty (Full time, associate, and Adjunct)
 - Faculty Center for Excellence in Teaching and Technology
 - NU IT
 - NU Library
 - Torrey Pines

Time to start again,
next window is Oct-Dec 2014

New CAE

- Additional Knowledge Units
- Designation based on meeting a defined set of core and a minimum of five (5) optional Knowledge Units for 4 year (plus) institutions
- Additional cyber defense focus areas
- Other requirements similar to last application

What is a knowledge unit?

- Knowledge Units composed of:
 - A minimum list of required topics to be covered
 - One or more “outcomes” or learning objectives

Sample KU Network Defense

- Topics
 - Implementing IDS/IPS
 - Implementing Firewalls and VPNs
 - Defense in Depth
 - Honeypots and Honeynets
 - Network Monitoring
 - Network Traffic Analysis
 - Minimizing Exposure (Attack Surface and Vectors)
 - Network Access Control (internal and external)
 - DMZs / Proxy Servers
 - Network Hardening
 - Mission Assurance
 - Network Policy Development and Enforcement
 - Network Operational Procedures
 - Network Attacks (e.g., session hijacking, Man-in-the-Middle)
- Outcomes (Student will be able to 😊)
 - Students will be able to:
 - Describe the various concepts in network defense.
 - Apply their knowledge to implement network defense measures.
 - Use a network monitoring tools (e.g., WireShark).
 - Use a network mapping tool (e.g., Nmap).

Demonstrating KU Compliance

- Course Syllabus
 - Prerequisite Course(s)
 - Prerequisite Degree
 - Student Assignments
 - Modules in a course/collection of courses
 - Certifications (CCNA, etc)
- A course may fulfill the requirements of multiple Knowledge Units.

Core KU's

2 Year

- Basic Data Analysis
- Basic Scripting/ Intro Programming (4Y)
- Cyber Defense
- Cyber Threats
- Fundamental Security Design Principles
- IA Fundamentals
- Intro to Cryptography
- IT Systems Components
- Networking Concepts
- Policy, Legal, Ethics, and Compliance
- System Administration

4 year

- Database Management Systems
- Network Defense
- Networking Technology and Protocols
- Operating Systems Concepts
- Probability and Statistics
- Programming

- | | |
|---|--|
| <ul style="list-style-type: none"> • Advanced Cryptography • Advanced Network Technology and Protocols • Algorithms • Analog Telecommunications • Cloud Computing • Cybersecurity Planning and Management • Data Administration • Data Structures • Database Management Systems • Digital Communications • Digital Forensics <ul style="list-style-type: none"> – Device Forensics – Host Forensics – Media Forensics – Network Forensics • Embedded Systems • Forensic Accounting • Formal Methods • Fraud Prevention and Management • Hardware Reverse Engineering • Hardware/Firmware Security • IA Architectures • IA Compliance • IA Standards • Independent/Directed Study/Research • Industrial Control Systems | <ul style="list-style-type: none"> • Intro to Theory of Computation • Intrusion Detection • Life-Cycle Security • Low Level Programming • Mobile Technologies • Network Security Administration • Operating Systems Hardening • Operating Systems Theory • Overview of Cyber Operations • Penetration Testing • QA / Functional Testing • RF Principles • Secure Programming Practices • Security Program Management • Security Risk Analysis • Software Assurance • Software Reverse Engineering • Software Security Analysis • Supply Chain Security • Systems Programming • Systems Certification and Accreditation • Systems Security Engineering • Virtualization Technologies • Vulnerability Analysis • Wireless Sensor Networks |
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Must pick 5 optional KU's

Focus Areas

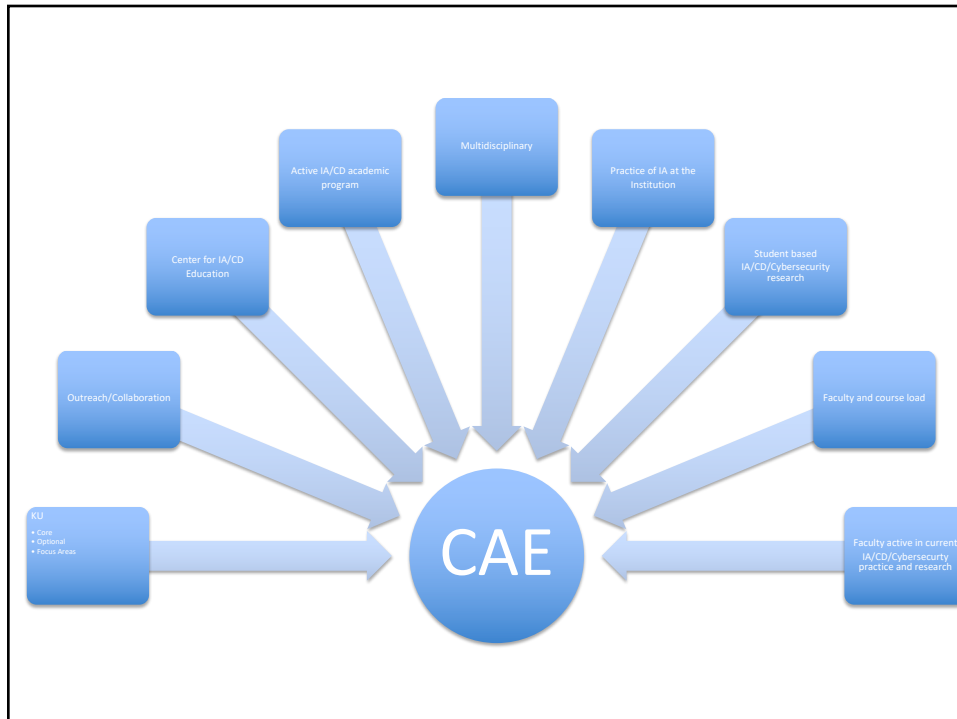
- | | |
|--|---|
| a. Cyber Investigations | j. Secure Embedded Systems |
| b. Data Management Systems Security | k. Secure Mobile Technology |
| c. Data Security Analysis | l. Secure Software Development |
| d. Digital Forensics | m. Secure Telecommunications |
| e. Health Care Security | n. Security Incident Analysis and Response |
| f. Industrial Control Systems-SCADA Security | o. Security Policy Development and Compliance |
| g. Network Security Administration | p. Systems Security Administration |
| h. Network Security Engineering | q. Systems Security Engineering |
| i. Secure Cloud Computing | |

Security Policy Development and Compliance Focus Area

- KUs necessary to impart the necessary skills and abilities for the development of organizational policies related to information assurance / cyber defense and the analysis of operational systems for compliance with applicable IA/CD-related laws and policies

Required KU's

- 1.3. Cyber Defense
- 1.4. Cyber Threats
- 1.5. Fundamental Security Design Principles
- 1.6. IA Fundamentals
- 1.8. IT Systems Components
- 1.10. Policy, Legal, Ethics, and Compliance
- 1.11. System Administration
- 3.6. Cybersecurity Planning and Management
- 3.22. IA Architectures
- 3.23. IA Compliance
- 3.24. IA Standards
- 3.29. Life-Cycle Security
- 3.40. Security Program Management
- 3.41. Security Risk Analysis
- 3.45. Supply Chain Security



Way Ahead

- Draft project plan
- Map core KU's
- Select optional KU's
- Select focus area(s)

Forensics Track

- CYB 621 Computer Forensics Principles (Under development)
 - Cyber Watch West Support
- CYB 622 Computer Forensics Technology
- CYB 623 Database Forensic Principles

CSAW Competition

171	Amin	individual	United States	Graduate	2600
584	Mighty Morphin' Cyber Rangers	NU CSIA	United States	Other	950
929	TheProfessors	NU	United States	Industry Professional	400
1086	Team Bottom Feeders	National University	United States	Graduate	250
1122	caballeros	National University	United States	Graduate	250
1128	Tiger	National University	United States	Graduate	250

San Diego Mayors' Cyber Cup

- Local high school cyber competition
- NU student and faculty volunteers
- STEM Initiative
- Mentors and sponsors needed