# ACM CCECC CYBER2YR2020

Cybersecurity-AAS

Cybersecurity-Certificate

Fall 2023

# SOURCE DOCUMENTS

- ACM CCECC Cyber2yr2020
  - http://ccecc.acm.org/files/publications/Cyber2yr2020.pdf

- ACM Cybersecurity 2017
  - https://www.acm.org/binaries/content/assets/education/curricula-recommendations/csec2017.pdf

# KNOWLEDGE AREAS

- Data Security
- Software Security
- Component Security
- Connection Security
- System Security
- Human Security
- Organizational Security
- Societal Security

# DATA SECURITY OVERVIEW

- Focuses on the protection of data at rest, during processing, and in transit.

- This knowledge area may require the application of mathematical and analytical algorithms.

# DATA SECURITY CLASSES

- AAS
  - Informatics
  - Network Operating Systems
  - Managing Directory Services
  - Linux 1
  - Network Security
  - Security Breaches & Countermeasures
  - Network Defense

- Certificate
  - Linux 1
  - Linux 2
  - Network Security
  - Security Breaches & Countermeasures
  - Network Defense

# SOFTWARE SECURITY OVERVIEW

- Focuses on the development of software with security and potential vulnerabilities in mind so that it cannot be easily exploited.

- The security of a system, and of the data it stores and manages, depends in large part on the security of its software. The security of software depends on how well the requirements match the needs that the software is to address, how well the software is designed, implemented, tested, and deployed and maintained. The documentation is critical for everyone to understand these considerations, and ethical considerations arise throughout the creation, deployment, use, and retirement of software.

# SOFTWARE SECURITY CLASSES

- AAS
  - Introduction to Programming & Scripting
  - Linux 1
  - Security Breaches & Countermeasures
  - Network Defense

- Certificate
  - Introduction to Programming & Scripting
  - Linux 1
  - Linux 2
  - Security Breaches & Countermeasures
  - Network Defense
  - SQL

# COMPONENT SECURITY OVERVIEW

- Focuses on the design, procurement, testing, analysis and maintenance of components integrated into larger systems.

- The security of a system depends, in part, on the security of its components. The security of a component depends on how it is designed, fabricated, procured, tested, connected to other components, used and maintained. Together with the Connection Security and System Security KAs, the Component Security KA addresses the security issues of connecting components and using them within larger systems.

# COMPONENT SECURITY CLASSES

- AAS
  - System Maintenance
  - Cisco 1
  - Cisco 2
  - Network Security
  - Network Defense
  - Linux 1

- Certificate
  - Cisco 1
  - Cisco 2
  - Network Security
  - Network Defense
  - Linux 1
  - Linux 2

# CONNECTION SECURITY OVERVIEW

- Focuses on the security of the connections between components including both physical and logical connections.

- It is critical that every cybersecurity professional has a basic knowledge of digital communications and networking. Connections are how components interact. Together with the Component Security and System Security KAs, the Connection Security KA addresses the security issues of connecting components and using them within larger systems.

# CONNECTION SECURITY CLASSES

- AAS
  - Informatics
  - Cisco 1
  - Cisco 2
  - Network Operating Systems
  - Managing Directory Services
  - Linux 1
  - Network Security
  - Enterprise Network Technologies
  - Network Defense

- Certificate
  - Informatics
  - Cisco 1
  - Cisco 2
  - Linux 1
  - Linux 2
  - Network Security
  - Network Defense

# SYSTEM SECURITY OVERVIEW

- Focuses on the security aspects of systems that are composed of components and connections and use software.

- Understanding the security of a system requires viewing it not only as a set of components and connections but also as a complete unit in and of itself. This requires a holistic view of the system. Together with the Component Security and Connection Security KAs, the System Security KA addresses the security issues of connecting components and using them within larger systems.

# SYSTEM SECURITY CLASSES

- AAS
  - System Maintenance
  - Network Operating Systems
  - Managing Directory Services
  - Network Security
  - Network Security
  - Security Breaches & Countermeasures
  - Enterprise Network Technologies
  - Network Defense
  - Linux 1

- Certificate
  - Network Security
  - Network Security
  - Security Breaches & Countermeasures
  - Network Defense
  - Linux 1
  - Linux 2

# HUMAN SECURITY OVERVIEW

- Focuses on protecting individuals' data and privacy in the context of organizations (i.e., as employees) and personal life, in addition to the study of human behavior as it relates to cybersecurity.

- Humans have the responsibility to ensure the confidentiality, integrity, and availability (CIA) of their organizational and personal computer systems.

# HUMAN SECURITY CLASSES

- AAS
  - Informatics
  - Network Operating Systems
  - Managing Directory Services
  - Linux 1
  - Enterprise Network Technologies
  - Network Defense

- Certificate
  - Linux 1
  - Linux 2
  - Network Defense

# ORGANIZATIONAL SECURITY OVERVIEW

- Focuses on protecting organizations from cybersecurity threats and managing risk to support the successful accomplishment of the organization's mission.

- Organizations have the responsibility to meet the needs of many constituencies and those needs must inform risk management, security governance, business continuity, and security program management.

# ORGANIZATIONAL SECURITY CLASSES

- AAS
  - Microcomputer Database
  - System Maintenance
  - Enterprise Network Technologies
  - Network Defense

- Certificate
  - Microcomputer Database
  - Network Defense
  - Linux 2

# SOCIETAL SECURITY OVERVIEW

- Focuses on aspects of cybersecurity that broadly impact society as a whole for better or for worse.

- Cybercrime, law, ethics, policy, privacy and their relation to each other are the key concepts of this knowledge area. The threat of cybercrime across global society is serious and growing. Laws, ethics, and policies are vital to the security of corporate and government secrets and assets, as well as to the protection of individual privacy and identity.

# SOCIETAL SECURITY CLASSES

- AAS
  - Informatics

- Certificate