Cybersecurity Program Objectives

Cross-Cutting Concepts

An ability to demonstrate competency in Cross-Cutting Concepts

- **Competencies**
  - CC-01 [Essential] Outline via appropriate methods, and using industry-standard terminology, cybersecurity-related issues within an organization as they pertain to Confidentiality, Integrity, and Availability. [Analyzing]
  - CC-02 [Essential] Assess and respond appropriately to various risks which can affect the expected operation of information systems. [Evaluating]
  - CC-03 [Essential] Investigate current and emerging cyberthreats and incorporate best practices to mitigate them. [Applying]
  - CC-04 [Essential] Apply appropriate countermeasures to help protect organizational resources based on an understanding of how bad actors think and operate. [Applying]
  - CC-05 [Essential] Discuss how changes in one part of a system may impact other parts of a cybersecurity ecosystem. [Understanding]

Data Security

An ability to demonstrate competency in Data Security

- **Competencies**
DAT-E01 [Essential] Implement data security by selecting appropriate cryptographic procedures, algorithms, and tools based on security policy and level of risk in an organization. [Applying]
DAT-E02 [Essential] Discuss forensically sound collection and acquisition of digital evidence. [Understanding]
DAT-E03 [Essential] Apply principles, processes, tools and techniques used in mitigating security threats and responding to security incidents. [Applying]
DAT-E04 [Essential] Use appropriate levels of authentication, authorization, and access control to ensure data integrity and security for information systems and networks. [Applying]
DAT-E05 [Essential] Infer gaps in data security considering current and emerging technologies and the current state and prevailing trends in cybercrime. [Understanding]
DAT-S01 [Supplemental] Perform a forensic analysis on a local network, on stored data within a system as well as mobile devices for an enterprise environment. [Applying]
DAT-S02 [Supplemental] Outline complex technical concepts to technical and non-technical audiences as they relate to data security. [Analyzing]

Software Security

An ability to demonstrate competency in Software Security

**Competencies**
SOF-E01 [Essential] Write secure code with appropriate documentation for a software system and its related data. [Applying]
SOF-E02 [Essential] Analyze security and ethical considerations at each phase of the software development lifecycle. [Analyzing]
SOF-E03 [Essential] Use documentation, such as third-party library documentation, in a given secure computing scenario. [Applying]
SOF-S01 [Supplemental] Implement isolation to secure a process or application. [Applying]
SOF-S02 [Supplemental] Discuss the relationship between an organization’s mission and secure software design. [Understanding]
SOF-S03 [Supplemental] Write software specifications, including security specifications, for a given process or application. [Applying]
SOF-S04 [Supplemental] Assess a given test plan, from a security perspective. Evaluating [Evaluating]
SOF-S05 [Supplemental] Examine social and legal aspects of software development from a security perspective. [Analyzing]
SOF-S06 [Supplemental] Develop user documentation for software installation with security appropriately included. [Creating]

Component Security

An ability to demonstrate competency in Component Security

**Competencies**
COM-E01 [Essential] Discuss vulnerabilities and mitigations of system components throughout their lifecycle. [Understanding]
COM-E02 [Essential] Perform security testing for given components within a system. [Applying]
COM-S01 [Supplemental] Analyze how component security features impact systems, such as software and firmware updates. [Analyzing]
Connection Security

An ability to demonstrate competency in Connection Security

**Competencies**
CON-E01 [Essential] Illustrate the construction and proper configuration of computer networks which adhere to current industry standards and organizational guidelines. [Applying]
CON-E02 [Essential] Investigate the impact of various connection and transmission attacks on network hardware and software. [Applying]
CON-S01 [Supplemental] Examine characteristics of commonly used physical networking media and interfaces. [Analyzing]
CON-S02 [Supplemental] Distinguish vulnerabilities and example exploits as they apply to network services, architectures, and protocols. [Analyzing]
CON-S03 [Supplemental] Implement appropriate defenses throughout an enterprise to harden the network against attackers. [Applying]
CON-S04 [Supplemental] Construct and properly configure computer networks which adhere to current industry standards and organizational guidelines. [Creating]

System Security

An ability to demonstrate competency in System Security

**Competencies**
SYS-E01 [Essential] Discuss security aspects of system management in common system architectures. [Understanding]
SYS-E02 [Essential] Contrast various methods for authentication and access control in an enterprise, and why one might choose one over another. [Analyzing]
SYS-E03 [Essential] Perform system security testing with an understanding of normal, secure operation, and document results. [Applying]
SYS-S01 [Supplemental] Critique security throughout the system lifecycle, including security requirements, system management, system testing, and system disposal. Evaluating [Evaluating]
SYS-S02 [Supplemental] Outline a security threat model and how system monitoring tools and mechanisms can be used. [Analyzing]
SYS-S03 [Supplemental] Examine appropriate models for managing authentication, access control and authorization across systems in an organization. [Analyzing]
SYS-S04 [Supplemental] Apply cyber defense methods to prepare a system against attacks, including penetration testing, log analysis, resilience mechanisms, and the use of intrusion detection systems. [Applying]
SYS-S05 [Supplemental] Discuss legal aspects of system and network requirements, such as support for litigation holds and forensic analysis. [Understanding]
SYS-S06 [Supplemental] Construct virtual environments including disk and memory structures to meet organization needs. [Creating]

Human Security

An ability to demonstrate competency in Human Security
**Competencies**

**HUM-E01** [Essential] Discuss identity management in the context of attacks and mitigations. [Understanding]

**HUM-E02** [Essential] Analyze the security of an individual’s data and privacy in the context of an organization and in their personal lives. [Analyzing]

**HUM-E03** [Essential] Describe trends in human behavior which pose risks to individual and organizational privacy and security. [Understanding]

**HUM-S01** [Supplemental] Analyze a variety of physical access controls. [Analyzing]

**HUM-S02** [Supplemental] Use a variety of tools and techniques to detect and mitigate social engineering threats. [Applying]

**HUM-S03** [Supplemental] Examine techniques to encourage personal compliance with cybersecurity rules, policies, and ethical norms. [Analyzing]

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**Organizational Security**

An ability to demonstrate competency in Organizational Security

**Competencies**

**ORG-E01** [Essential] Describe policies, procedures, and ethical considerations to protect information security. [Understanding]

**ORG-E02** [Essential] Describe security features in operating system and database administration in a local or cloud environment. [Understanding]

**ORG-E03** [Essential] Summarize the components of a business continuity plan that ensures minimal down time and quick recovery in the face of cybersecurity incidents or natural disasters. [Understanding]

**ORG-E04** [Essential] Describe physical security features to protect an organization’s computing and information resources. [Understanding]

**ORG-S01** [Supplemental] Analyze risks to information assets in an organization and communicate them to stakeholders. [Analyzing]

**ORG-S02** [Supplemental] Assess administrative procedures for protecting systems from attack and ensuring the availability of system access and functions in an organization. Evaluating [Evaluating]

**ORG-S03** [Supplemental] Analyze the meaning and use of various security metrics and data with the aid of tools, to ensure quality control and security of data. [Analyzing]

**ORG-S04** [Supplemental] Discuss issues related to personnel security in an organization, including the protection of personally identifiable information, and proper use or avoidance of fear, uncertainty, and doubt (FUD) as an awareness tool. [Understanding]

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**Societal Security**

An ability to demonstrate competency in Societal Security

**Competencies**

**SOC-E01** [Essential] Interpret applicable cyber policies and ethics for a given scenario. [Understanding]

**SOC-E02** [Essential] Summarize applicable national, international, and global security policies and legislation. [Understanding]

**SOC-E03** [Essential] Distinguish social dynamics of computer attackers in a global context. [Analyzing]

**SOC-S01** [Supplemental] Attribute specific cyber laws and potential economic impact for a given cybercrime scenario. [Analyzing]

**SOC-S02** [Supplemental] Compare different cyber ethics theories that impact on individuals and society.