

# Cybersecurity Fundamentals (6302)

## Exploring Cybersecurity Fundamentals CF.1

- 1 Describe cybersecurity. CF.1.1
- 2 Describe the critical factors of information assurance. CF.1.2
- 3 Define vulnerability and risk. CF.1.3
- 4 Explain why organizations need to manage risk. CF.1.4
- 5 Identify the concepts of cybersecurity risk management. CF.1.5
- 6 Describe cybersecurity threats to an organization. CF.1.6
- 7 Describe national and industry standards and regulations that relate to cybersecurity. CF.1.7
- 8 Describe the cyberattack surface of various organizations. CF.1.8
- 9 Analyze risks affecting critical infrastructure. CF.1.9

## Examining Computer Networks as a Foundational Element of Cybersecurity CF.2

- 1 Describe computer components. CF.2.1
- 2 Describe a network. CF.2.2
- 3 Describe a wired network. CF.2.3
- 4 Describe a wireless network. CF.2.4
- 5 (Optional) Compare wired and wireless networks. CF.2.5
- 6 Compare networking conceptual models. CF.2.6
- 7 Discuss services and potential vulnerabilities. CF.2.7
- 8 Differentiate between network types. CF.2.8
- 9 Describe the concept of the Internet as a network of connected systems. CF.2.9
- 10 Identify networking protocols. CF.2.10

## Understanding Cyber Threats and Vulnerabilities CF.3

- 1 Differentiate between a cyber threat and a vulnerability. CF.3.1
- 2 Describe types of cyber threats. CF.3.2
- 3 Analyze types of current cyber threats. CF.3.3
- 4 Describe the concept of malware and the techniques to guard against it. CF.3.4
- 5 Identify the perpetrators of different types of malicious hacking. CF.3.5
- 6 Describe the characteristics of vulnerabilities. CF.3.6
- 7 Identify the prevention of and protections against cyber threats. CF.3.7
- 8 (Optional) Identify the cyber risks associated with bring your own device (BYOD) opportunities on computer networks. CF.3.8

## Exploring Ethics as it Relates to Cybersecurity CF.4

- 1 Differentiate between ethics and laws. CF.4.1
- 2 Distinguish among types of ethical concerns. CF.4.2
- 3 Define cyberbullying. CF.4.3
- 4 Identify actions that constitute cyberbullying. CF.4.4
- 5 (Optional) Identify possible warning signs of someone being cyberbullied. CF.4.5
- 6 (Optional) Demonstrate net etiquette (i.e., netiquette) as it relates to cybersecurity. CF.4.6
- 7 Identify laws applicable to cybersecurity. CF.4.7

## Exploring Data Privacy CF.5

- 1 Explain the concept of “personally identifiable information.” CF.5.1
- 2 Explain why personal data is valuable to both an individual and to organizations (e.g., governments, businesses) that collect it, analyze it, and make decisions based on it. CF.5.2
- 3 Explain the techniques used to collect personal data through social media, web tracking, and mobile devices. CF.5.3
- 4 Identify ways to control and protect personal data. CF.5.4
- 5 Analyze the social and legal significance of the ongoing collection of personal digital information. CF.5.5

## Examining Data Security as it Relates to Cybersecurity CF.6

- 1 Distinguish between data, information, and knowledge. CF.6.1
- 2 Identify the most common ways data is collected. CF.6.2

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- 3 Identify the most common ways data can be stored.** [CF.6.3](#)
  - 4 Explain the difference between data at rest, data in transit, and data being processed.** [CF.6.4](#)
  - 5 Identify the most common ways data is used.** [CF.6.5](#)
  - 6 Discuss how data can be compromised, corrupted, or lost.** [CF.6.6](#)
  - 7 Explain how businesses and individuals can protect themselves against threats to their data.** [CF.6.7](#)
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## Securing Operating Systems [CF.7](#)

- 1 Define the function of a computer operating system.** [CF.7.1](#)
  - 2 (Optional) Identify the components of an operating system.** [CF.7.2](#)
  - 3 List types of operating systems.** [CF.7.3](#)
  - 4 Identify examples of widely used desktop and server operating systems.** [CF.7.4](#)
  - 5 Evaluate the potential vulnerabilities, threats, and common exploits to an operating system.** [CF.7.5](#)
  - 6 Identify best practices for protecting operating systems.** [CF.7.6](#)
  - 7 Evaluate critical operating system security parameters.** [CF.7.7](#)
  - 8 (Optional) Describe security and auditing logs.** [CF.7.8](#)
  - 9 (Optional) Describe the role of a system backup.** [CF.7.9](#)
  - 10 Define virtualization technology.** [CF.7.10](#)
  - 11 (Optional) Identify advantages and disadvantages of using virtual machines.** [CF.7.11](#)
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## Programming as a Component of Cybersecurity [CF.8](#)

- 1 Identify representation of data at lowest levels.** [CF.8.1](#)
  - 2 Define programming in the context of cybersecurity.** [CF.8.2](#)
  - 3 Differentiate between computer programming languages.** [CF.8.3](#)
  - 4 (Optional) Describe Python.** [CF.8.4](#)
  - 5 (Optional) Demonstrate Linux.** [CF.8.5](#)
  - 6 (Optional) Evaluate common programming flaws that lead to vulnerabilities.** [CF.8.6](#)
  - 7 Identify best practices in secure coding and design.** [CF.8.7](#)
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**Exploring Cybersecurity Implications for Current and Emerging Technologies** CF.9

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- 1 Identify ubiquitous computing.** CF.9.1
  - 2 Description security and privacy implications of ubiquitous computing.** CF.9.2
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**Exploring Cybersecurity Careers** CF.10

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- 1 Research career opportunities for cybersecurity professionals.** CF.10.1
  - 2 Examine the Career Clusters affected by current and emerging technology.** CF.10.2
  - 3 Identify the educational pathways for emerging cybersecurity professionals.** CF.10.3
  - 4 Identify career paths and job titles within the cybersecurity and/or cyber forensics industry and Career Clusters.** CF.10.4
  - 5 Research the cyber threats and security measures related to career pathways.** CF.10.5
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**Preparing for Industry Certification** CF.11

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- 1 Identify testing skills and strategies for a certification examination.** CF.11.1
- 2 Describe the process and requirements for obtaining industry certifications related to the Cybersecurity Fundamentals course.** CF.11.2
- 3 Demonstrate the ability to complete selected practice examinations.** CF.11.3
- 4 Successfully complete an industry certification examination representative of skills learned in this course.** CF.11.4