PLTW Computer Science Standards Connection Cybersecurity

PLTW

Connections to Standards in Computer Science

PLTW curriculum is designed to empower students to thrive in an evolving world. As a part of the design process when developing and updating our curriculum, we focus on connections to a variety of standards. PLTW Cybersecurity connects to standards in the following:

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Computer Science Teachers Association K-12 Computer Science

Computing Systems

3A-CS-02

Compare levels of abstraction and interactions between application software, system software, and hardware layers.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	✔	☐	☐	✔	✔	✔	✔	✔	✔	☐	✔

Networks and the Internet

3A-NI-04

Evaluate the scalability and reliability of networks, by describing the relationship between routers, switches, servers, topology, and addressing.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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3A-NI-05

Give examples to illustrate how sensitive data can be affected by malware and other attacks.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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3A-NI-06

Recommend security measures to address various scenarios based on factors such as efficiency, feasibility, and ethical impacts.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
✔	✔	✔	✔	☐	✔	✔	✔	✔	✔	✔	✔	✔	✔

3A-NI-07

Compare various security measures, considering tradeoffs between the usability and security of a computing system.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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3A-NI-08

Explain tradeoffs when selecting and implementing cybersecurity recommendations.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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Computer Science Teachers Association K-12 Computer Science

Data and Analysis

3A-DA-09

Translate between different bit representations of real-world phenomena, such as characters, numbers, and images.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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3A-DA-10

Evaluate the tradeoffs in how data elements are organized and where data is stored.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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3A-DA-11

Create interactive data visualizations using software tools to help others better understand real-world phenomena.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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3A-DA-12

Create computational models that represent the relationships among different elements of data collected from a phenomenon or process.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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Algorithms and Programming

3A-AP-13

Create prototypes that use algorithms to solve computational problems by leveraging prior student knowledge and personal interests.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐

3A-AP-14

Use lists to simplify solutions, generalizing computational problems instead of repeatedly using simple variables.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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Computer Science Teachers Association K-12 Computer Science

3A-AP-21

Evaluate and refine computational artifacts to make them more usable and accessible.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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3A-AP-22

Design and develop computational artifacts working in team roles using collaborative tools.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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3A-AP-23

Document design decisions using text, graphics, presentations, and/or demonstrations in the development of complex programs.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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Impacts of Computing

3A-IC-24

Evaluate the ways computing impacts personal, ethical, social, economic, and cultural practices.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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3A-IC-26

Demonstrate ways a given algorithm applies to problems across disciplines.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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3A-IC-27

Use tools and methods for collaboration on a project to increase connectivity of people in different cultures and career fields.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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Computer Science Teachers Association K-12 Computer Science

Computing Systems

3B-CS-01

Categorize the roles of operating system software.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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3B-CS-02

Illustrate ways computing systems implement logic, input, and output through hardware components.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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Networks and the Internet

3B-NI-03

Describe the issues that impact network functionality (e.g., bandwidth, load, delay, topology).

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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3B-NI-04

Compare ways software developers protect devices and information from unauthorized access.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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Data and Analysis

3B-DA-05

Use data analysis tools and techniques to identify patterns in data representing complex systems.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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3B-DA-06

Select data collection tools and techniques to generate data sets that support a claim or communicate information.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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Computer Science Teachers Association K-12 Computer Science

Algorithms and Programming

3B-AP-10

Use and adapt classic algorithms to solve computational problems.

	Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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3B-AP-15

Analyze a large-scale computational problem and identify generalizable patterns that can be applied to a solution.

	Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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3B-AP-18

Explain security issues that might lead to compromised computer programs.

	Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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3B-AP-22

Modify an existing program to add additional functionality and discuss intended and unintended implications (e.g., breaking other functionality).

	Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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Impacts of Computing

3B-IC-25

Evaluate computational artifacts to maximize their beneficial effects and minimize harmful effects on society.

	Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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3B-IC-28

Debate laws and regulations that impact the development and use of software.

	Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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NICE Cybersecurity Workforce Framework

A0001

Identify systemic security issues based on the analysis of vulnerability and configuration data.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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A0003

Determine the validity of technology trend data.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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A0005

Decrypt digital data collections.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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A0010

Analyze malware.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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A0011

Answer questions in a clear and concise manner.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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A0012

Ask clarifying questions.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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A0013

Communicate complex information, concepts, or ideas in a confident and well-organized manner through verbal, written, and/or visual means.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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NICE Cybersecurity Workforce Framework

A0014

Communicate effectively when writing.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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A0015

Conduct vulnerability scans and recognize vulnerabilities in security systems.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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A0019

Produce technical documentation.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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A0021

Use and understand complex mathematical concepts (e.g., discrete math, boolean algebra).

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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A0025

Accurately define incidents, problems, and events.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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A0026

Analyze test data.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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A0027

Apply an organization's goals and objectives to develop and maintain architecture.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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NICE Cybersecurity Workforce Framework

A0030

Collect, verify, and validate test data.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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A0035

Ability to dissect a problem and examine the interrelationships between data that may appear unrelated.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	☐	☐	☑	☑	☐	☑	☐	☑	☐	☑	☑

A0040

Translate data and test results into evaluative conclusions.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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A0041

Use data visualization tools.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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A0042

Develop career path opportunities.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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A0043

Conduct forensic analyses in and for both windows and Unix/Linux environments.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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A0048

Apply network security architecture concepts including topology, protocols, components, and principles (e.g., application of defense-in-depth).

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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NICE Cybersecurity Workforce Framework

A0049

Apply secure system design tools, methods and techniques.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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A0052

Operate network equipment including hubs, routers, switches, bridges, servers, transmission media, and related hardware.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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A0055

Operate common network tools (e.g., ping, traceroute, nslookup).

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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A0058

Execute os command line (e.g., ipconfig, netstat, dir, netstat).

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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A0059

Operate the organization's lan/wan pathways.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
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A0061

Design architectures and frameworks.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☑	☐	☐	☑

A0062

Monitor measures or indicators of system performance and availability.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☑	☐	☐	☐	☑	☐	☐	☑	☑	☐	☑	☑

NICE Cybersecurity Workforce Framework

A0065

Monitor traffic flows across the network.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	☐	☐	☐	☐	☑	☑	☑	☑	☐	☑	☑

A0067

Ability to adjust to and operate in a diverse, unpredictable, challenging, and fast-paced work environment.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☐	☑	☑

A0069

Ability to apply collaborative skills and strategies.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☑	☑	☑	☐	☐	☐	☑	☐	☐	☐	☑	☐	☑	☑

A0070

Ability to apply critical reading/thinking skills.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☑	☑	☐	☐	☐	☑	☐	☐	☐	☑	☐	☑	☑

A0074

Collaborate effectively with others.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☑	☑	☑	☐	☐	☐	☑	☐	☐	☐	☑	☐	☑	☑

A0080

Develop or recommend analytic approaches or solutions to problems and situations for which information is incomplete or for which no precedent exists.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	☑	☐	☑

A0083

Evaluate information for reliability, validity, and relevance.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	☑	☐	☑	☑	☑	☑	☑	☑	☑	☑	☑

NICE Cybersecurity Workforce Framework

A0084

Evaluate, analyze, and synthesize large quantities of data (which may be fragmented and contradictory) into high quality, fused targeting/intelligence products.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	☐	☐	☐	☐	☑	☑	☑	☑	☐	☐	☑

A0085

Exercise judgment when policies are not well-defined.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☑	☐	☑	☐	☐	☐	☑	☐	☐	☐	☑	☐	☐	☑

A0086

Expand network access by conducting target analysis and collection to identify targets of interest.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☑	☐	☑	☑

A0092

Identify/describe target vulnerability.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☑	☐	☑	☐	☐	☐	☑	☐	☐	☑	☑	☐	☑	☑

A0093

Identify/describe techniques/methods for conducting technical exploitation of the target.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	☑	☐	☐	☑	☐	☐	☑	☑	☐	☑	☑

A0096

Ability to interpret and understand complex and rapidly evolving concepts.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	☐	☐	☐	☐	☑	☐	☑	☑	☐	☐	☑

A0097

Ability to monitor system operations and react to events in response to triggers and/or observation of trends or unusual activity.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	☐	☐	☐	☑	☑	☑	☑	☑	☐	☐	☑

NICE Cybersecurity Workforce Framework

A0101

Recognize and mitigate cognitive biases which may affect analysis.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☑	☐	☑	☑

A0105

Tailor technical and planning information to a customer's level of understanding.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☑	☐	☐	☐	☑	☐	☐	☐	☑	☐	☐	☑

A0106

Ability to think critically.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☑	☑	☑	☑	☐	☑	☑	☑	☑	☑	☑	☑	☑	☑

A0107

Think like threat actors.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	☑	☐	☑	☑	☑	☑	☑	☑	☐	☑	☑

A0113

Determine whether a security incident violates a privacy principle or legal standard requiring specific legal action.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☑	☑

A0120

Share meaningful insights about the context of an organization's threat environment that improve its risk management posture.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☑	☑	☐	☐	☑	☐	☐	☐	☐	☐	☑	☑

A0123

Apply cybersecurity and privacy principles to organizational requirements (relevant to confidentiality, integrity, availability, authentication, non-repudiation).

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☑	☑	☑	☑	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐

NICE Cybersecurity Workforce Framework

A0124

Establish and maintain automated security control assessments.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	☑	☐	☐	☑

A0126

Ability to track the location and configuration of networked devices and software across departments, locations, facilities and, potentially, supporting business functions.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	☐	☐	☑	☐	☐	☐	☑	☑	☐	☑	☑

A0127

Ability to deploy continuous monitoring technologies and tools.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	☐	☐	☐	☐	☑	☑	☑	☑	☐	☐	☑

A0128

Apply techniques for detecting host and network-based intrusions using intrusion detection technologies.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	☐	☐	☑	☑	☑	☑	☑	☑	☐	☐	☑

A0155

Provide an assessment of the severity of weaknesses or deficiencies discovered in the system and its environment of operation and recommend corrective actions to address identified vulnerabilities.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☑	☑	☑	☑	☐	☐	☑	☐	☐	☑	☑	☐	☑	☑

A0159

Interpret the information collected by network tools (e.g. nslookup, ping, and traceroute).

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	☐	☐	☐	☐	☑	☑	☑	☑	☐	☑	☑

NICE Cybersecurity Workforce Framework

A0172

Set up a physical or logical sub-networks that separates an internal local area network (lan) from other untrusted networks.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	☐	☐	☐	☑	☐	☑	☐	☐	☐	☐	☐

S0052

Use social engineering techniques. (e.g., phishing, baiting, tailgating, etc.).

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐

K0158

Know organizational information technology (IT) user security policies (e.g., account creation, password rules, access control).

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	☐	☑	☐

Standards for Technological and Engineering Literacy

STEL 1 Nature and Characteristics of Technology and Engineering

STEL-1N

Explain how the world around them guides technological development and engineering design.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
✔	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

STEL 2 Core Concepts of Technology and Engineering

STEL-2U

Diagnose a flawed system embedded within a larger technological, social, or environmental system.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	✔	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

STEL-2V

Analyze the stability of a technological system and how it is influenced by all of the components in the system, especially those in the feedback loop.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	✔	✔	☐	✔	✔	☐	✔	✔	✔	✔	☐	☐	✔

STEL-2W

Select resources that involve tradeoffs between competing values, such as availability, cost, desirability, and waste while solving problems.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	✔	☐	☐	☐	☐	☐	☐	☐	☐	☐	✔

STEL-2X

Cite examples of the criteria and constraints of a product or system and how they affect final design.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	✔	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

STEL-2Y

Implement quality control as a planned process to ensure that a product, service, or system meets established criteria.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	☐	☐	✔	☐	☐	☐	☐	☐	☐	☐	✔

Standards for Technological and Engineering Literacy

STEL 4 Impacts of Technology

STEL-4P

Evaluate ways that technology can impact individuals, society, and the environment.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

STEL 5 Influence of Society on Technological Development

STEL-5H

Evaluate a technological innovation that arose from a specific society's unique need or want.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

STEL 6 History of Technology

STEL-6F

Relate how technological development has been evolutionary, often the result of a series of refinements to basic inventions or technological knowledge.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐

STEL-6G

Verify that the evolution of civilization has been directly affected by, and has in turn affected, the development and use of tools, materials and processes.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐

STEL-6H

Evaluate how technology has been a powerful force in reshaping the social, cultural, political, and economic landscapes throughout history.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

STEL-6J

Investigate the widespread changes that have resulted from the Information Age, which has placed emphasis on the processing and exchange of information.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	☐

Standards for Technological and Engineering Literacy

STEL 7 Design in Technology and Engineering Education

STEL-7W

Determine the best approach by evaluating the purpose of the design.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑

STEL-7Y

Optimize a design by addressing desired qualities within criteria and constraints.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	☑	☑	☐	☑	☐	☑	☐	☑	☐	☐	☑

STEL-7Z

Apply principles of human-centered design.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

STEL 8 Applying, Maintaining, and Assessing Technological Products and Systems

STEL-8N

Use various approaches to communicate processes and procedures for using, maintaining, and assessing technological products and systems.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☑	☐	☑	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑

STEL-8O

Develop a device or system for the marketplace.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐

STEL-8P

Apply appropriate methods to diagnose, adjust and repair systems to ensure precise, safe and proper functionality.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☑	☑	☐	☑	☑	☑	☑	☑	☑	☑	☐	☑	☑

Standards for Technological and Engineering Literacy

STEL-8Q

Synthesize data and analyze trends to make decisions about technological products, systems, or processes.

Unit 1			Unit 2				Unit 3				Unit 4		
1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
☐	☐	☐	☐	☐	☐	☑	☐	☑	☑	☑	☐	☑	☑

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