

# IT Security Program: Scope & Sequence

## Year 1- Semester 1

### ITS 101 - Information Technologies Fundamentals

(18 weeks)

#### District Pre-Assessment

#### Technology in Action 16 Edition (7 Weeks)

##### **Unit Name: (1) The Impact of Technology in a Changing World (.5 weeks)**

- Discuss the impact of the tools of modern technology on national and global issues
- Describe emerging technologies, such as artificial intelligence, and how technology creates new ethical debates

CTSO Integration: Air Force Association's CyberPatriot Exhibition Round 2

Professional Skills: Financial Practices 9.A

Academic Standards: ELA.11-12.W.8, ELA.11-12.SL.4

Technical Standard: None, this course is part of a CIS105 dual enrollment requirement

##### **Unit Name: (2) Looking at Computers: Understanding the Parts (.5 weeks)**

- Describe the devices that make up a computer system
- Describe how computers process and store data and how devices connect to a computer system

CTSO Integration: (Personal Skills) Integrity, To Be or Not To Be Honest

Professional Skills: Complex Communication 1.A

Academic Standards: ELA.11-12.W.7, ELA.11-12.W.8, ELA.11-12.W.9, Work-based Learning: N/A

Technical Standard: None, this course is part of a CIS105 dual enrollment requirement

##### **Unit Name: (3) Using the Internet: Making the Most of the Web's Resources (.5 weeks)**

- Explain how the Internet works and how it is used for collaboration, communication, commerce, and entertainment purpose

CTSO Integration: Social Media Officer Training

Professional Skills: Complex Communication 1.B

Academic Standards: ELA.11-12.L.6, ELA.11-12.RI.7, ELA.11-12.RI.10,

Work-based Learning: Guest Speaker (2 hours)

Technical Standard: None, this course is part of a CIS105 dual enrollment requirement

##### **Unit Name: (4) Application Software: Programs That Let You Work and Play (.5 weeks)**

- Explain the ways to access and use software and describe how to best manage your software
- Describe the different types of application software used for productivity and multimedia

CTSO Integration: (Personal Skills) Integrity, To Be or Not To Be Honest

Professional Skills: Complex Communication 4.F

Academic Standards: ELA.11-12.W.9, ELA.11-12.SL.5

Technical Standard: None, this course is part of a CIS105 dual enrollment requirement

##### **Unit Name: (5) System Software: The Operating System, Utility Programs, and File Management (.5 weeks)**

- Explain the types and functions of operating systems and explain the steps in the boot process
- Describe how to use system software, including the user interface, file management capabilities, and utility programs

CTSO Integration: (Personal Skills) Integrity, To Be or Not To Be Honest

Professional Skills: Complex Communication 1.C

Academic Standards: ELA.11-12.L.4

Technical Standard: None, this course is part of a CIS105 dual enrollment requirement

##### **Unit Name: (6) Understanding and Assessing Hardware: Evaluating Your System (.5 weeks)**

- Evaluate your computer system's hardware functioning, including the CPU and memory subsystems.
- Evaluate your computer system's storage subsystem, media subsystem, and reliability and decide whether to purchase a new system or upgrade an existing one

CTSO Integration: (Personal Skills) Integrity, Accepts Responsibility  
Professional Skills: Complex Communication 1.D  
Academic Standards: ELA.11-12.SL.5  
Technical Standard: None, this course is part of a CIS105 dual enrollment requirement

**Unit Name: (7) Networking: Connecting Computing Devices** (.5 weeks)

● Explain the basics of networking, including the components needed to create a network, and describe the different ways a network can connect to the Internet

● Describe what is necessary to install and configure a home network and how to manage and secure a wireless network

CTSO Integration: (Personal Skills) Integrity, Accepts Responsibility  
Professional Skills: Collaboration 2.C  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: ADE Network Security 15.1200.30.1(1.1-1.4)

**Unit Name: (8) Managing a Digital Lifestyle: Media and Ethics** (.5 weeks)

● Describe the nature of digital signals; how digital technology is used to produce and distribute digital texts, music, and video; and the challenges in managing a digital lifestyle

● Describe how to respect digital property and use it in ways that maintain your digital reputation

CTSO Integration: (Personal Skills) Integrity, Accepts Responsibility  
Professional Skills: Complex Communication 1.D  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: None, this course is part of a CIS105 dual enrollment requirement

**Unit Name: (9) Securing Your System: Protecting Your Digital Data and Devices** (1 weeks)

● Describe hackers, viruses, and other online annoyances and the threats they pose to your digital security

● Describe various ways to protect your digital property and data from theft and corruption

CTSO Integration: (Personal Skills) Work Ethic, Get It Done  
Professional Skills: Collaboration 2.B  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: None, this course is part of a CIS105 dual enrollment requirement

**Unit Name: (10) Behind the Scenes: Software Programming** (.5 weeks)

● Describe the life cycle of a software project and identify the stages in the program development life cycle

● Discuss factors programmers consider when selecting an appropriate programming language for a specific problem and will be familiar with some modern programming languages

CTSO Integration: (Personal Skills) Work Ethic, Get It Done  
Professional Skills: Collaboration 2.A  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: None, this course is part of a CIS105 dual enrollment requirement

**Unit Name: (11) Behind the Scenes: Databases and Information Systems** (.5 weeks)

● Explain the basics of databases, including the most common types of databases and the functions and components of relational databases in particular

● Explain how businesses use data warehouses, data marts, and data mining to manage data and how business information systems and business intelligence are used to make business decisions

CTSO Integration: Air Force Association's CyberPatriot Training Round  
Professional Skills: Financial Practices 9.C  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: None, this course is part of a CIS105 dual enrollment requirement

**Unit Name: (12) Behind the Scenes: Networking and Security in the Business World** (.5 weeks)

● Describe common types of client/server networks, servers found on them, and network topologies used to construct them

● Describe transmission media, network operating system software, and network navigation devices and explain major threats to network security and how to mitigate them

CTSO Integration: Air Force Association's CyberPatriot Training Round

Professional Skills: Collaboration 2.C  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: ADE Network Security 15.1200.30.1(1.1-1.4)

**Unit Name: (13) Behind the Scenes: How the Internet Works (.5 weeks)**

- Explain how the Internet is managed and the details of how data is transmitted across the Internet
- Describe the web technologies used to develop web applications

CTSO Integration: Air Force Association's CyberPatriot Training Round

Professional Skills: Complex Communication 1.C

Academic Standards: ELA.11-12.RI.2

Technical Standard: None, this course is part of a CIS105 dual enrollment requirement

**TestOut Office Pro (4 Weeks)**

**Certifications: MOS Word Associate 2019 (Exam MO-100), MOS Excel Associate 2019 (Exam MO-200), MOS PowerPoint Associate 2019 (Exam MO-300), MOS Access Expert 2019 (Exam MO-500), MOS Outlook Associate 2019 (Exam MO-400), TestOut Office Pro Certification**

**Unit Name: (1) Online Essentials (.5 weeks)**

- The Information Age, The Internet and Social Media, Digital Communication, Online Safety and Security, Evaluating Online Information

CTSO Integration: Air Force Association's CyberPatriot Training Round

Professional Skills: Financial Practices 9.A

Academic Standards: ELA.11-12.RI.2

Technical Standard: This unit does not map to any technical standards.

**Unit Name: (2) Computer Essentials (.5 weeks)**

- Computer Hardware, System Software, File Management, Application Software, Networking and User Accounts, Databases, Computer Programming, Information Systems

CTSO Integration: Air Force Association's CyberPatriot Training Round

Professional Skills: Complex Communication 1.A

Academic Standards: ELA.11-12.W.7, ELA.11-12.W.8, ELA.11-12.W.9, ELA.11-12.W.8, ELA.11-12.SL.4

Technical Standard: This unit does not map to any technical standards

**Unit Name: (3) Common Office Features (.5 weeks)**

- Getting Started with Office, Customizing Views and Options, Printing Files, Navigating Files, Working with Objects

CTSO Integration: Air Force Association's CyberPatriot Training Round

Professional Skills: Complex Communication 1.B

Academic Standards: ELA.11-12.L.6, ELA.11-12.RI.7, ELA.11-12.RI.10,

Technical Standard: MO-100 1.1.1, 1.1.2, 1.1.3, 1.3.2, 1.3.3, 2.1.1, 5.1.6, 5.2.1, 5.2.2, 5.2.4, 5.3.1, 5.3.2, 5.4.1, MO-200 1.2.1, 1.2.2, 1.2.3, 1.4.1, 1.4.2, 1.4.4, 1.4.5, 1.5.3, MO-300 1.2.2, 1.2.3, 1.3.1, 1.3.2, 1.3.3, 1.3.4, 3.4.1, 3.4.2, 3.4.3, 3.4.4, 3.4.5, 3.4.6, 3.4.7, 3.5.4

**Unit Name: (4) Microsoft Word (.5 weeks)**

- Introduction to Word, Creating Documents and Using the Clipboard, Modifying Fonts, Formatting Paragraphs, Formatting Pages, Editing Documents, Inserting Illustrations and Other Elements, Creating and Formatting Tables, Using Themes, Styles, and Templates, Managing References, Managing Headers, Footers, and Sections, Using Office Collaboration Features, Using Macros

CTSO Integration: Air Force Association's CyberPatriot Training Round

Professional Skills: Complex Communication 1.C

Academic Standards: ELA.11-12.W.9, ELA.11-12.SL.5

Work-based Learning: Resume Writing

Technical Standard: MO-100 1.1.4, 1.2.1, 1.2.2, 1.2.3, 1.2.4, 1.3.1, 1.3.4, 1.4.1, 1.4.2, 1.4.3, 2.1.2, 2.2.1, 2.2.3, 2.2.4, 2.2.5, 2.3.1, 2.3.2, 2.3.3, 3.1.1, 3.1.2, 3.1.3, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.3.1, 3.3.2, 3.3.3, 3.3.4, 3.3.5, 3.3.6, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.2.1, 4.2.2, 4.2.3, 5.1.1, 5.1.2, 5.1.6, 5.2.1, 5.2.2, 5.2.3, 5.3.1, 5.3.2, 5.4.2, 5.4.3, 6.1.1, 6.1.2, 6.1.3, 6.1.4, 6.2.4, MO-200 1.5.4, 5.3.3, MO-300 1.5.1, 1.5.2, 1.5.3, 1.5.4, 1.5.5, 1.5.6, 3.3.3, 3.4.7

**Unit Name: (5) Microsoft Excel (.5 weeks)**

● Introduction to Excel, Creating and Managing Workbooks, Organizing and Entering Data, Changing Properties and Printing Worksheets, Formatting Cells, Entering Simple Formulas, Using Advanced Functions, Displaying Data in Charts, Organizing Data in Tables, Summarizing Complex Data

CTSO Integration: Air Force Association's CyberPatriot Training Round

Professional Skills: Complex Communication 1.C

Academic Standards: ELA.11-12.RI.2

Technical Standard: MO-200 1.1.1, 1.1.2, 1.3.1, 1.3.2, 1.3.3, 1.4.3, 1.4.4, 1.4.6, 1.5.1, 1.5.2, 2.3.1, 2.4.1, 3.3.2, 4.1.2, 4.2.2, 4.3.2, 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.2.1, 2.2.2, 2.2.3, 2.2.4, 2.2.5, 2.2.6, 2.2.7, 2.2.8, 2.3.1, 2.3.2, 2.4.1, 2.4.2, 2.4.3, 3.1.1, 3.1.2, 3.1.3, 3.2.1, 3.2.2, 3.2.3, 3.3.1, 3.3.2, 4.1.1, 4.1.2, 4.2.1, 4.2.2, 4.2.3, 4.3.1, 4.3.2, 4.3.3, 5.1.1, 5.1.2, 5.2.1, 5.2.2, 5.2.3, 5.3.1, 5.3.2, 5.3.3

**Unit Name: (6) Microsoft PowerPoint**(.5 weeks)

● Introduction to PowerPoint, Creating and Managing Presentations, Formatting Textual Content, Designing Slides, Using the Slide Master, Formatting SmartArt and Shapes, Formatting Tables and Charts, Formatting Pictures and Other Media, Applying Animations and Transitions, Delivering Presentations

CTSO Integration: SkillsUSA Fall Leadership Conference

Professional Skills: Complex Communication 1.C

Academic Standards: ELA.11-12.RI.2

Technical Standard: MO-100 5.1.3, 5.1.4, 5.1.5, 5.2.5, 5.2.6, 5.3.3, 6.1.1, 6.1.2, 6.1.3, 6.1.4, 6.2.1, 6.2.2, 6.2.3, 6.2.4, MO-300 1.1.1, 1.1.2, 1.1.3, 1.1.4, 1.1.5, 1.1.6, 1.2.1, 1.4.1, 1.4.2, 1.4.3, 1.4.4, 1.4.5, 1.5.4, 1.5.5, 1.5.6, 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.2.1, 2.2.2, 2.2.3, 2.3.1, 2.3.2, 2.3.3, 3.1.1, 3.1.2, 3.1.3, 3.2.1, 3.2.2, 3.3.1, 3.3.2, 3.3.3, 3.5.1, 3.5.2, 3.5.3, 4.1.1, 4.1.2, 4.1.3, 4.2.1, 4.2.2, 4.3.1, 4.3.2, 4.3.3, 4.4.1, 4.4.2, 4.5.1, 4.5.2, 4.5.3, 5.1.1, 5.1.2, 5.2.1, 5.2.2, 5.2.3, 5.2.4, 5.2.5, 5.3.1, 5.3.2

**Unit Name: (7) Microsoft Access**(.5 weeks)

● Introduction to Access, Managing Databases, Designing and Creating Tables, Using Simple Queries, Creating Forms, Creating Reports, Surveying Advanced Access Features

CTSO Integration: Air Force Association's CyberPatriot Practice Round

Professional Skills: Complex Communication 1.C

Academic Standards: ELA.11-12.RI.2

Technical Standard: MO-500 1.1.1, 1.1.2, 1.1.3, 1.2.1, 1.2.2, 1.2.3, 1.2.4, 1.2.5, 1.3.1, 1.3.2, 2.1.1, 2.1.2, 2.1.3, 2.2.1, 2.2.2, 2.2.3, 2.3.1, 2.3.2, 2.3.3, 2.4.1, 2.4.2, 2.4.3, 2.4.4, 2.4.5, 2.4.6, 2.4.7, 2.4.8, 3.1.1, 3.1.2, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 4.1.1, 4.1.2, 4.1.3, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.2.5, 5.1.1, 5.1.2, 5.1.3, 5.2.1, 5.2.2, 5.2.3, 5.2.4, 5.2.5, 5.2.6

**Unit Name: (8) Microsoft Outlook**(.5 weeks)

● Introduction to Outlook, Sending and Receiving Messages, Managing Messages, Working with the Calendar, Managing Contacts and Groups

CTSO Integration: Air Force Association's CyberPatriot Practice Round

Professional Skills: Complex Communication 1.C

Academic Standards: ELA.11-12.RI.2

Technical Standard: MO-400 1.1.1, 1.1.2, 1.1.3, 1.2.1, 1.2.2, 1.2.3, 1.3.1, 1.3.2, 1.3.3, 1.3.4, 1.4.4, 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.1.6, 2.2.1, 2.2.2, 2.2.3, 2.3.1, 2.3.2, 2.3.3, 2.3.4, 2.3.5, 2.3.6, 2.3.7, 3.1.1, 3.1.2, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.3.1, 3.3.2, 3.3.3, 3.3.4, 3.3.5, 4.1.1, 4.1.2, 4.1.3, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1

**IT Essentials v7 (7 Weeks)**

**Certification: CompTIA A+ (220-1001, 220-1002)**

**Unit Name: (1) Introduction to Personal Computer Hardware**(.5 weeks)

● Select the appropriate computer components to build, repair, or upgrade personal computers.

CTSO Integration: Air Force Association's CyberPatriot Practice Round

Professional Skills: Legal and Ethical practices 8.C

Academic Standards: Math 5.NF.B.6

Technical Standard: 220-1001 3.0

**Unit Name: (2) PC Assembly**(.5 weeks)

● Install components to build, repair, or upgrade personal computers

CTSO Integration: Air Force Association's CyberPatriot Practice Round  
Professional Skills: Collaboration: 2.A  
Academic Standards: Math A-CED.A.1  
Technical Standard: ADE Network Security 15.1200.30.2(2.1-2.7), 220-1001 3.0, 5.0

**Unit Name: (3) Advanced Computer Hardware (.5 weeks)**

● Install and configure components to upgrade a computer  
CTSO Integration: Air Force Association's CyberPatriot Practice Round  
Professional Skills: Professionalism 4.B  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: 220-1001 3.0, 5.0

**Unit Name: (4) Preventive Maintenance and Troubleshooting (.5 weeks)**

● Perform Troubleshooting on personal computers.  
CTSO Integration: Air Force Association's CyberPatriot Practice Round  
Professional Skills: Professionalism 4.F  
Academic Standards: ELA.11-12.SL.3, ELA.11-12.RI.10, ELA.11-12.W.4  
Work-based Learning: Guest Speaker (2 hours)  
Technical Standard: ADE Network Security 15.1200.30.2(2.1-2.7), 220-1001 5.0

**Unit Name: (5) Networking Concepts (.5 weeks)**

● Explain how computers communicate on a network.  
CTSO Integration: Air Force Association's CyberPatriot Practice Round  
Professional Skills: Collaboration 2.C  
Academic Standards: ELA.11-12.RI.7  
Technical Standard: ADE Network Security 15.1200.30.1(1.1-1.4), 220-1001 2.0, 5.0

**Unit Name: (6) Applied Networking (.5 weeks)**

● Configure devices to communicate on a network.  
CTSO Integration: (Personal Skills) Work Ethic, Get It Done  
Professional Skills: Legal and Ethical practices 8.D  
Academic Standards: Complex Communication 2.C  
Technical Standard: ADE Network Security 15.1200.30.1(1.1-1.4), 15.1200.30.3, 220-1001 2.0, 5.0

**Unit Name: (7) Laptops and Other Mobile Devices (.5 weeks)**

● Explain how to troubleshoot Laptops and other Mobile Devices  
CTSO Integration: Air Force Association's CyberPatriot Round 1  
Professional Skills: Professionalism 4.C  
Academic Standards: ELA.11-12.RI.2  
Work-based Learning: Service Learning Project with Community Partners (3 Hours)  
Technical Standard: 220-1001 1.0

**Unit Name: (8) Printers (.5 weeks)**

● Install a printer to meet requirements.  
CTSO Integration: (Personal Skills) Work Ethic, Get It Done  
Professional Skills: Professionalism 4.D  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: 220-1001 2.0, 3.0

**Unit Name: (9) Virtualization and Cloud Computing (.5 weeks)**

● Describe virtualization and cloud computing.  
CTSO Integration: (Personal Skills) Professionalism, Stop, Think and Be Mature  
Professional Skills: Legal and Ethical practices 8.G  
Academic Standards: ELA.11-12.RI.2

Technical Standard: 220-1001 4.0

**Unit Name: (10) Windows Installation**(.5 weeks)

- Install Windows operating systems

CTSO Integration: (Personal Skills) Professionalism, Stop, Think and Be Mature

Professional Skills: Collaboration 2.C

Academic Standards: ELA.11-12.RI.2

Technical Standard: 220-1002 1.0, 3.0

**Unit Name: (11) Windows Configuration**(.5 weeks)

- Perform management and maintenance of Windows operating systems.

CTSO Integration: Air Force Association's CyberPatriot Round 2

Professional Skills: Initiative and Self-Direction 5.A

Academic Standards: ELA.11-12.RI.2

Technical Standard: 220-1002 1.0, 3.0

**Unit Name: (12) Mobile, Linux, and OSX Operating Systems** (.5 weeks)

- Explain how to configure, secure, and troubleshoot mobile, Mac, and Linux operating systems.

CTSO Integration: (Personal Skills) Professionalism, Stop, Think and Be Mature

Professional Skills: Professionalism 4.A

Academic Standards: ELA.11-12.RI.2

Technical Standard: 220-1002 1.0, 3.0

**Unit Name: (13) Security**(.5 weeks)

- Implement basic host, data, and network security.

CTSO Integration: (Personal Skills) Professionalism, I Believe In Me

Professional Skills: Initiative and Self-Direction 5.B

Academic Standards: ELA.11-12.RI.2

Technical Standard: 220-1002 2.0

**Unit Name: (14) The IT Professional**(.5 weeks)

- Explain the roles and responsibilities of the IT Professional.

CTSO Integration: (Personal Skills) Professionalism, I Believe In Me

Professional Skills: Initiative and Self-Direction 5.D, Legal and Ethical Practices 8.E

Academic Standards: ELA.11-12.W.4, ELA.11-12.W.5

Technical Standard: 220-1002 4.0

**Year 1- Semester 2**

**ITS 102 - Operating Systems**

(16 weeks)

**TestOut Linux Pro (9 Weeks)**

**Certification: CompTIA Linux+ (XK0-004), TestOut Linux Pro Certification**

**Unit Name: (1) Linux Pro Introduction and Overview**(1 day)

- Summarize and explain server roles.

CTSO Integration: (Personal Skills) Professionalism, I Believe In Me

Professional Skills: Thinking and Innovation 3.B

Academic Standards: ELA.11-12.W.7, ELA.11-12.W.8, ELA.11-12.W.9, ELA.11-12.W.8, ELA.11-12.SL.4

Technical Standard: XK0-004 2.5, TO 2.2

**Unit Name: (2) Using Linux**(.5 weeks)

- Given a scenario, manage users and groups

- Given a scenario, create, modify, and redirect files.

● Given a scenario, deploy and execute basic BASH scripts  
CTSO Integration: (Personal Skills) Professionalism, I Believe In Me  
Professional Skills: Initiative and Self-Direction 5.C  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: XK0-004 2.2, 2.3, 5.1, TO 1.1, 1.2, 2.2

**Unit Name: (3) Installation and Localization**(.5 weeks)

● Given a scenario, manage storage in a Linux environment.  
● Given a scenario, configure localization options.  
CTSO Integration: (Personal Skills) Professionalism, Choose Your Own Identity  
Professional Skills: Thinking and Innovation 3.C  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: XK0-004 1.4, 1.6

**Unit Name: (4) Boot and Shutdown** (.5 weeks)

● Explain Linux boot process concepts.  
● Given a scenario, manage services.  
CTSO Integration: (Personal Skills) Professionalism, Choose Your Own Identity  
Professional Skills: Thinking and Innovation 3.B  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: XK0-004 1.1, 2.4, TO 1.3, 1.4

**Unit Name: (5) Graphical User Interfaces and Desktops**(.5 weeks)

● Compare and contrast Linux graphical user interfaces.  
CTSO Integration: (Personal Skills) Professionalism, Choose Your Own Identity  
Professional Skills: Thinking and Innovation 3.A  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: XK0-004 2.8

**Unit Name: (6) Software Installation**(.5 weeks)

● Given a scenario, conduct software installations, configurations, updates, and removals.  
CTSO Integration: (Personal Skills) Responsibility, You Can Count On Me  
Professional Skills: Thinking and Innovation 3.E  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: XK0-004 2.1, TO 1.5

**Unit Name: (7) User and Groups**(.5 weeks)

● Given a scenario, manage users/groups  
● Given a scenario, analyze and troubleshoot application and hardware issues.  
CTSO Integration: Air Force Association's CyberPatriot Round 3  
Professional Skills: Professionalism 4.E  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: XK0-004 2.2, 4.4, TO 4.1

**Unit Name: (8) Disk and File System Management**(.5 weeks)

● Given a scenario, manage storage  
● Given a scenario, analyze system properties and remediate accordingly.  
● Given a scenario, analyze and troubleshoot application/hardware issues.  
CTSO Integration: (Personal Skills) Responsibility, You Can Count On Me  
Professional Skills: Legal and Ethical practices 8.A  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: XK0-004 1.4, 2.1, 2.2, 2.3, 3.1, 3.6, 4.1, 4.2, 4.3, 4.4, 5.1, TO 2.1, 2.2, 4.2

**Unit Name: (9) Hardware Installation**(1 weeks)

● Given a scenario, install, configure, and monitor kernel modules.

- Explain the use and operation of Linux devices.
- Given a scenario, install, configure, and monitor kernel modules.

CTSO Integration: (Personal Skills) Responsibility, You Can Count On Me  
Professional Skills: Thinking and Innovation 3.E  
Academic Standards: ELA.11-12.RI.2  
Work-based Learning: Field Trip  
Technical Standard: XK0-004 1.2, 2.7, 4.1, TO 1.4

**Unit Name: (10) Processes and System Services (.5 weeks)**

- Given a scenario, analyze system processes in order to optimize performance.

CTSO Integration: (Personal Skills) Responsibility, You Can Count On Me  
Professional Skills: Collaboration 2.C  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: XK0-004 1.6, 2.4, 2.5, 2.6, 2.7, 3.3, 4.2, TO 1.4, 3.1

**Unit Name: (11) System Monitoring (.5 weeks)**

- Given a scenario, implement logging services.

CTSO Integration: (Personal Skills) Responsibility, Personal Well-Being, My #1 Responsibility  
Professional Skills: Collaboration 2.C  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: XK0-004 1.2, 2.7, 3.4, 4.1, 4.2, TO 4.3

**Unit Name: (12) Networking (.5 weeks)**

- Summarize and explain server roles.

CTSO Integration: (Personal Skills) Responsibility, Personal Well-Being, My #1 Responsibility  
Professional Skills: Collaboration 2.C  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: ADE Network Security 15.1200.30.1(1.1-1.4), XK0-004 1.3, 1.5, 2.5, 3.5, 4.1, 4.4, TO 3.1, 4.3

**Unit Name: (13) Cloud and Virtualization (.5 weeks)**

- Compare and contrast cloud and virtualization concepts and technologies.

CTSO Integration: (Personal Skills) Responsibility, Personal Well-Being, My #1 Responsibility  
Professional Skills: Thinking and Innovation 3.E  
Academic Standards: ELA.11-12.RI.2  
Work-based Learning: Guest Speaker (2 hours)  
Technical Standard: XK0-004 1.5

**Unit Name: (14) Scripting and Automation (.5 weeks)**

- Given a scenario, carry out version control using Git.

CTSO Integration: (Personal Skills) Adaptability/Flexibility, Get Out-Of-The-Box  
Professional Skills: Initiative and Self-Direction 5.D  
Academic Standards: Thinking and Innovation 3.E  
Technical Standard: XK0-004 5.1, 5.2, 5.3

**Unit Name: (15) Security (1 weeks)**

- Given a scenario, implement and configure Linux firewalls.

CTSO Integration: (Personal Skills) Adaptability/Flexibility, Get Out-Of-The-Box  
Professional Skills: Legal and Ethical practices 8.B  
Academic Standards: ELA.11-12.RI.2  
Work-based Learning: Mock Business/Industry Project - NICE Challenge (24 hours)  
Technical Standard: XK0-004 1.3, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.8, 3.1, 3.2, 3.3, 3.5, 3.6, 4.1, 4.2, 4.4, TO 1.5, 4.1, 4.3

## **ITS 102 - Operating Systems**

### **Introduction to Networks v7 (9 Weeks)**



## Cisco Certified Network Associate (CCNA) (200-301)

### **Unit Name (1):** Networking Today (.5 Week)

- Explain the advances in modern network technologies.

CTSO Integration: Air Force Association's CyberPatriot National Finals Competition

Professional Skills: Initiative and Self-Direction 5.E

Academic Standards: Complex Communication 1.C

Technical Standard: ADE Network Security 15.1200.30.6(6.1-6.5), 200-301 1.1, 1.2, 1.3, 1.10, 1.12

### **Unit Name (2):** Basic Switch and End Device Configuration (.5 Week)

- Implement initial settings including passwords, IP addressing, and default gateway parameters on a network switch and end devices.

CTSO Integration: (Personal Skills) Adaptability/Flexibility, Get Out-Of-The-Box

Professional Skills: Complex Communication 1.D

Academic Standards: A1.A-SSE.B.3

Technical Standard: ADE Network Security 15.1200.30.1(1.1-1.4), 200-301 1.2, 1.3, 1.10

### **Unit Name (3):** Protocols and Models (.5 Week)

- Explain how network protocols enable devices to access local and remote network resources.

CTSO Integration: (Personal Skills) Adaptability/Flexibility, Get Out-Of-The-Box

Professional Skills: Legal and Ethical practices 8.E

Academic Standards: Complex Communication 1.D

Technical Standard: ADE Network Security 15.1200.30.8(8.1-8.12), 200-301 1.1, 1.2, 1.3, 1.4, 1.5

### **Unit Name (4):** Physical Layer (.5 Week)

- Explain how physical layer protocols, services, and network media support communications across data networks.

CTSO Integration: (Personal Skills) Self-Motivated, Growing My Career Opportunities

Professional Skills: Complex Communication 1.D

Academic Standards: ELA.11-12.RI.2

Technical Standard: ADE Network Security 15.1200.30.7(7.1-7.8), 200-301 1.1, 1.2, 1.3, 1.10

### **Unit Name (5):** Number Systems (.5 Week)

- Calculate numbers between decimal, binary, and hexadecimal systems.

CTSO Integration: SkillsUSA Regional Conference

Professional Skills: Complex Communication 1.D

Academic Standards: A1.A-SSE.B.3

Technical Standard: ADE Network Security 15.1200.30.5(5.1-5.6), 200-301 1.2

### **Unit Name (6):** Data Link Layer (.5 Week)

- Explain how media access control in the data link layer supports communication across networks.

CTSO Integration: (Personal Skills) Self-Motivated, Growing My Career Opportunities

Professional Skills: Complex Communication 1.D

Academic Standards: ELA.11-12.RI.2

Technical Standard: 200-301, 1.1, 1.2, 1.3, 1.4, 1.5

### **Unit Name (7):** Ethernet Switching (.5 Week)

- Explain how Ethernet operates in a switched network.

CTSO Integration: (Personal Skills) Self-Motivated, Growing My Career Opportunities

Professional Skills: Complex Communication 1.D

Academic Standards: A1.A-SSE.B.3

Technical Standard: 200-301 1.2, 1.3, 1.4

### **Unit Name (8):** Network Layer (.5 Week)

- Explain how routers use network layer protocols and services to enable end-to-end connectivity.

CTSO Integration: (Personal Skills) Self-Motivated, Showing Initiative

Professional Skills: Complex Communication 1.D

Academic Standards: ELA.11-12.RI.2

Technical Standard: ADE Network Security 15.1200.30.8(8.1-8.12), 200-301 1.2, 1.4, 1.5, 1.7

**Unit Name (9): Address Resolution (.5 Week)**

● Explain how ARP and ND enable communication on a network.

CTSO Integration: (Personal Skills) Self-Motivated, Showing Initiative

Professional Skills: Complex Communication 1.D

Academic Standards: A1.A-SSE.B.3

Technical Standard: 200-301 1.3

**Unit Name (10): Basic Router Configuration (.5 Week)**

● Implement initial settings on a router and end devices

CTSO Integration: (Personal Skills) Self-Motivated, Showing Initiative

Professional Skills: Complex Communication 1.D

Academic Standards: Math 6.EE.A.2

Technical Standard: ADE Network Security 15.1200.30.3(3.1-3.11), 200-301 1.2, 1.3, 1.4, 1.8

**Unit Name (11): IPv4 Addressing (.5 Week)**

● Calculate an IPv4 subnetting scheme to efficiently segment a network.

CTSO Integration: (Personal Skills) Self-Motivated, Showing Initiative

Professional Skills: Financial Practices 9.B

Academic Standards: Math 5.NF.B.7, 6.RP.A.3, A1.A-SSE.B.3

Technical Standard: ADE Network Security 15.1200.30.5(5.1-5.6), 200-301 1.2, 1.4, 200-301 1.6

**Unit Name (12): IPv6 Addressing (.5 Week)**

● Implement an IPv6 addressing scheme.

CTSO Integration: (Workplace Skills) Decision Making, Make Informed Decisions: A How-To Guide

Professional Skills: Complex Communication 1.D

Academic Standards: Math 5.NF.B.7, 6.RP.A.3

Technical Standard: ADE Network Security 15.1200.30.5(5.1-5.6), 200-301 1.2, 1.3, 1.7, 1.10

**Unit Name (13): ICMP (.5 Week)**

● Use various tools to test network connectivity.

CTSO Integration: (Workplace Skills) Decision Making, Make Informed Decisions: A How-To Guide

Professional Skills: Complex Communication 1.D

Academic Standards: A1.A-SSE.B.3

Technical Standard: 200-301 1.2, 1.4

**Unit Name (14): Transport Layer (.5 Week)**

● Compare the operations of transport layer protocols in supporting end-to-end communication.

CTSO Integration: (Workplace Skills) Decision Making, Make Informed Decisions: A How-To Guide

Professional Skills: Complex Communication 1.D

Academic Standards: ELA.11-12.RI.2

Technical Standard: 200-301 1.5

**Unit Name (15): Application (.5 Week)**

● Explain the operation of application layer protocols in providing support to end-user applications.

CTSO Integration: (Workplace Skills) Multicultural Sensitivity and Awareness, Fostering Diversity

Professional Skills: Complex Communication 1.D

Academic Standards: A1.A-SSE.B.3

Work-based Learning: Mock Interviews - Interview Prep

Technical Standard: 200-301, 1.1, 1.5, 1.10

**Unit Name (16): Network Security Fundamentals (.5 Week)**

● Configure switches and routers with device hardening features to enhance security.

CTSO Integration: (Workplace Skills) Multicultural Sensitivity and Awareness, Fostering Diversity

Professional Skills: Organizational Structure 7.C

Work-based Learning: Guest Speaker (2 hours)

Technical Standard: ADE Network Security 15.1200.30.1(1.1-1.4), 200-301 1.1, 1.2, 1.3, 1.10

**Unit Name (17): Build a Small Network (.5 Week)**

● Implement a network design for a small network to include a router, a switch, and end devices.

CTSO Integration: (Workplace Skills) Multicultural Sensitivity and Awareness, Fostering Diversity

Professional Skills: Thinking and Innovation 3.A

Academic Standards: Math 7.EE.B.3, ELA.11-12.W.4

Technical Standard: ADE Network Security 15.1200.30.3(3.1-3.11), 15.1200.30.9, 200-301 1.1, 1.2, 1.3, 1.4, 1.7, 1.10

Common AZCCR Math Standards (CAMS)

English Language Arts Standards (ELAS)

**District Post-Assessment**

**Year 2- Semester 1**

**ITS 201 - Networks, Switches, Routers**

(18 weeks)

**TestOut Client Pro (6 Weeks)**

**Certifications: Windows 10 (MD-100), Managing Modern Desktops (MD-101) Passing both exams results in Microsoft 365 Certified: Modern Desktop Administrator Associate, TestOut Client Pro Certification**

**Unit Name (1): Course Introduction (1 Day)**

● Course Introduction, Windows User Interface Overview, File and Folder Management

CTSO Integration: (Workplace Skills) Planning, Organizing and Management, Planning to Plan

Professional Skills: Complex Communication 1.C

Academic Standards: ELA.11-12.RI.2

Technical Standard: MD-100 1.2.4, 2.2.1, 2.2.2, TO 1.2.1, 2.3.3, 2.3.4

**Unit Name (2): Windows Installation (.5 Weeks)**

● Windows Versions, Installation, Activation, Post -Installation Configuration, Deployment, Web Browser Configuration, Windows Upgrade, User Profile and Data Migration

CTSO Integration: (Workplace Skills) Planning, Organizing and Management, Planning to Plan

Professional Skills: Legal and Ethical practices 8.F

Academic Standards: ELA.11-12.RI.2

Technical Standard: MD-100 1.1.1, 1.1.2, 1.1.3, 1.1.4, 1.1.5, 1.1.6, 1.2.1, 1.2.3, 1.2.4, 2.3.1, MD-101 1.2.1, 1.2.2, 1.2.3, 1.2.4, 1.2.5, 1.2.6, 1.3.1, 1.3.2, 1.3.3, 1.3.4, 1.3.5, 4.1.7, TO 1.1.1, 1.1.2

**Unit Name (3): System Imaging (.5 Weeks)**

● System Images, Image Servicing, Provisioning Packages, Sideloaded Apps

CTSO Integration: (Workplace Skills) Planning, Organizing and Management, Planning to Plan

Professional Skills: Complex Communication 1.D

Academic Standards: ELA.11-12.RI.2

Technical Standard: MD-100 1.1.2, 1.1.4, MD-101 1.1.1, 1.1.2, 1.1.3, 4.1.5

**Unit Name (4): Windows Device and User Management (.5 Weeks)**

● Device and User Management, Active Directory

CTSO Integration: (Workplace Skills) Planning, Organizing and Management, Planning to Plan

Professional Skills: Thinking and Innovation 3.B

Academic Standards: ELA.11-12.RI.2

Work-based Learning: Guest Speaker (2 hours)

Technical Standard: MD-100 2.1.1, 2.1.3, 2.3.2, 2.3.3, MD-101 1.5.3, TO 2.1.1, 2.1.2, 2.1.5

**Unit Name (5): Hardware Management (.5 Weeks)**

● Devices and Drivers, Device Driver Troubleshooting, Display Management, OneDrive Storage  
CTSO Integration (Workplace Skills) Planning, Organizing and Management, Managing to Plan  
Professional Skills: Thinking and Innovation 3.E

Academic Standards: ELA.11-12.RI.2

Technical Standard: MD-100 4.1.1, 4.3.3, MD-101 2.4.4, TO 2.3.4, 4.3.1, 4.3.2

**Unit Name (6): Network Configuration (.5 Weeks)**

● IPv4, IPv6, IP Configuration, IP Troubleshooting, Wireless Networking Overview/Configuration  
CTSO Integration (Workplace Skills) Planning, Organizing and Management, Managing to Plan  
Professional Skills: Complex Communication 1.D

Academic Standards: A1.A-SSE.B.3

Technical Standard: MD-100 3.1.1, 3.1.2, 3.1.4, 3.1.5, TO 3.1.2, 3.1.3, 3.1.4, 3.3.2

**Unit Name (7): Application Management (.5 Weeks)**

● Desktop Applications, User Account Control (UAC), Windows Store Apps, Cloud-based Apps  
CTSO Integration (Workplace Skills) Planning, Organizing and Management, Managing to Plan  
Professional Skills: Organizational Structure 7.B

Academic Standards: Math 6.RP.A.3

Technical Standard: MD-100 2.4.1, 4.3.3, MD-101 4.1.3, 4.1.4, 4.1.6, TO 2.2.2, 2.2.3

**Unit Name (8): System Access (.5 Weeks)**

● Authentication and Authorization, Authentication Management, User Rights and Account Policies, Credential Management, Encryption, Alternative Authentication Options, NTFS Permissions, Auditing, Dynamic Access Control (DAC)  
CTSO Integration (Workplace Skills) Planning, Organizing and Management, Managing to Plan  
Professional Skills: Organizational Structure 7.A

Academic Standards: ELA.11-12.RI.2

Technical Standard: ADE Network Security 15.1200.30.3(3.1-3.11), MD-100 1.2.3, 2.1.2, 2.1.3, 2.2.1, 2.4.3, 4.3.1, MD-101 3.1.2, 1.5.2, TO 1.2.3, 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.2.1, 2.3.2, 2.3.3, 2.4.2

**Unit Name (9): Resource Sharing (.5 Weeks)**

● Resource Sharing, Shared Resource Troubleshooting, Printer Management and Sharing  
CTSO Integration: (Workplace Skills) Communication, Putting Your Best Communication Forward  
Professional Skills: Thinking and Innovation 3.E

Academic Standards: ELA.11-12.RI.2

Technical Standard: MD-100 2.2.1, 2.2.2, TO 2.3.2, 2.3.3, 4.1.1, 4.1.2

**Unit Name (10): Mobile Computing (.5 Weeks)**

● Co-Management, Mobile Device Management - Intune Enrollment, Mobile Management - Intune, Policies and Profiles, Virtual Private Network (VPN), BitLocker, Mobile Device Security, Power Management, Mobility Options, Mobile Networking/Apps  
CTSO Integration: (Workplace Skills) Communication, Putting Your Best Communication Forward  
Professional Skills: Thinking and Innovation 3.E

Academic Standards: ELA.11-12.RI.2

Technical Standard: MD-100 1.2.2, 2.4.3, 3.1.2, 3.1.3, 3.1.5, MD-101 1.5.1, 2.1.1, 2.1.2, 2.1.3, 2.2.1, 2.2.2, 2.2.3, 2.2.4, 2.2.5, 2.2.6, 2.3.1, 2.3.2, 2.3.3, 2.4.1, 2.4.2, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.3.1, 3.3.2, 4.1.1, 4.1.2, 4.1.8, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.2.5, 4.2.6 TO 1.1.3, 1.2.2, 2.3.1, 2.3.2, 2.3.4, 2.4.4, 3.1.1, 3.1.4

**Unit Name (11): System Monitoring and Maintenance (.5 Weeks)**

● System Configuration Tools, System Events, Performance Management, Resource Monitoring, Reliability and Performance Maintenance, Windows Optimization, Remote Management, Remote Desktop and Remote Assistance, System Troubleshooting Tools

CTSO Integration: (Workplace Skills) Communication, Putting Your Best Communication Forward

Professional Skills: Thinking and Innovation 3.E

Academic Standards: ELA.11-12.RI.2

Technical Standard: ADE Network Security 15.1200.30.2(2.1-2.7), MD-100 3.2.1, 3.2.2, 3.2.3, 4.1.3, 4.3.1, 4.3.2, 4.3.3, MD-101 3.3.1, 3.3.2, TO 1.2.1, 3.2.1, 3.2.2, 4.4.1, 4.4.2

**Unit Name (12): System Protection (.5 Weeks)**

● Windows Updates, Advanced Windows Updates, System Restore, Backup, Recovery, Recovery Environment

CTSO Integration: (Workplace Skills) Communication, The Message Is Clear

Professional Skills: Thinking and Innovation 3.E

Academic Standards: ELA.11-12.RI.2

Work-based Learning: Mock Business/Industry Project - NICE Challenge (24 hours)

Technical Standard: ADE Network Security 15.1200.30.3(3.1-3.11), MD-100 1.1.2, 4.1.1, 4.1.2, 4.1.3, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.2.5, MD-101 1.4.1, 1.4.2, 1.4.3, 1.4.4, 1.4.5, TO 4.2.2, 4.2.3, 4.2.4, 4.2.5, 4.3.1

**Unit Name (13): Windows Defender (.5 Weeks)**

● Malware Protection, Windows Security, Windows Defender Credential Guard, Windows Defender Exploit Guard, Windows Defender Advanced Threat Protection, Windows Defender Application Control, Windows Defender Application Guard, Windows Defender Firewall, Windows Defender Firewall with Advanced Security

CTSO Integration (Leadership Skills): SkillsUSA State Championships

Professional Skills: Thinking and Innovation 3.E

Academic Standards: ELA.11-12.RI.2

Technical Standard: ADE Network Security 15.1200.30.3(3.1-3.11), MD-100 2.4.2, MD-101 3.1.1, 3.1.2, 3.1.3, 3.1.4, 3.1.5, 3.1.6, TO 2.4.1, 2.4.2, 2.4.3, 2.4.4, 2.4.5

**Switching, Routing, and Wireless Essentials v7 (12 Weeks)**

**Cisco Certified Network Associate (CCNA) (200-301)**

**Unit Name (1): Basic Device Configuration (.5 Week)**

● Configure devices by using security best practices

CTSO Integration: SkillsUSA National Leadership and Skills Conference

Professional Skills: Legal and Ethical practices 8.H

Academic Standards: ELA.11-12.RI.2

Technical Standard: ADE Network Security 15.1200.30.2(2.1-2.7), 200-301 2.1, 2.7, 2.8, 3.1, 3.2, 3.3, 4.8, 4.9

**Unit Name (2): Switching Concepts (.5 Week)**

● Explain how Layer 2 switches forward data

CTSO Integration (Workplace Skills) Communication, The Message Is Clear

Professional Skills: Collaboration 2.C

Academic Standards: A1.A-SSE.B.3

Technical Standard: 200-301 1.13, 2.1

**Unit Name (3): VLANs (1 Week)**

● Implement VLANs and trunking in a switched network.

CTSO Integration: (Workplace Skills) Communication, The Message Is Clear

Professional Skills: Collaboration 2.C

Academic Standards: ELA.11-12.RI.2

Technical Standard: ADE Network Security 15.1200.30.3(3.1-3.11), 200-301 2.1, 2.2, 2.8, 4.4, 4.8, 4.9

**Unit Name (4): Inter-VLAN Routing (1 Week)**

● Troubleshoot inter-VLAN routing on Layer 3 devices

CTSO Integration (Workplace Skills) Communication, The Message Is Clear

Professional Skills: Collaboration 2.C

Academic Standards: A1.A-SSE.B.3

Technical Standard: ADE Network Security 15.1200.30.1(1.1-1.4), 200-301 2.1, 2.2, 2.4, 3.1, 3.3

**Unit Name (5): STP (1 Week)**

● Explain how STP enables redundancy in a Layer 2 network.  
CTSO Integration: (Workplace Skills) Leadership, Opening the Door  
Professional Skills: Collaboration 2.C  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: 200-301 2.1, 2.2, 2.5, 2.7, 3.1, 4.3

**Unit Name (6): EtherChannel (.5 Week)**

● Troubleshoot EtherChannel on switched links.  
CTSO Integration: (Workplace Skills) Leadership, Opening the Door  
Professional Skills: Collaboration 2.C  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: 200-301 2.1, 2.2, 2.4, 2.6, 2.7

**Unit Name (7): DHCPv4 (1 Week)**

● Implement DHCPv4 to operate across multiple LANs.  
CTSO Integration (Workplace Skills) Teamwork, Capitalizing on Strengths  
Professional Skills: Collaboration 2.C  
Academic Standards: A1.A-SSE.B.3  
Technical Standard: ADE Network Security 15.1200.30.9(9.1-9.9), 200-301 3.1, 4.1, 4.2, 4.3, 4.6, 4.9

**Unit Name (8): SLAAC and DHCPv6 Concepts (1 Week)**

● Configure dynamic address allocation in IPv6 networks.  
CTSO Integration (Workplace Skills) Teamwork, Capitalizing on Strengths  
Professional Skills: Collaboration 2.C  
Academic Standards: A1.A-SSE.B.3  
Technical Standard: ADE Network Security 15.1200.30.9(9.1-9.9), 200-301 2.7, 4.2, 4.3, 4.6

**Unit Name (9): FHRP Concepts (.5 Week)**

● Explain how FHRPs provide default gateway services in a redundant network.  
CTSO Integration: (Workplace Skills) Teamwork, Capitalizing on Strengths  
Professional Skills: Collaboration 2.C  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: 200-301 2.2, 2.3, 3.1

**Unit Name (10): LAN Security Concepts (.5 Week)**

● Explain how vulnerabilities compromise LAN security  
CTSO Integration (Workplace Skills) Teamwork, Capitalizing on Strengths  
Professional Skills: Thinking and Innovation 3.E  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: ADE Network Security 15.1200.30.1(1.1-1.4), 200-301 2.1, 2.2, 2.3, 2.7, 2.8, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.8, 4.9

**Unit Name (11): Switch Security Configuration (.5 Week)**

● Implement switch security to mitigate LAN attacks  
CTSO Integration (Workplace Skills) Teamwork, Cooperation Gets the Job Done  
Professional Skills: Thinking and Innovation 3.E  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: ADE Network Security 15.1200.30.3(3.1-3.11), 15.1200.30.10, 200-301 2.1, 2.2, 2.3, 2.4, 2.6, 4.3, 4.5, 4.6

**Unit Name (12): WLAN Concepts (.5 Week)**

● Explain how WLANs enable network connectivity.  
CTSO Integration (Workplace Skills) Teamwork, Cooperation Gets the Job Done  
Professional Skills: Collaboration 2.C  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: ADE Network Security 15.1200.30.8(8.1-8.12), 200-301 2.1, 2.2, 2.4, 2.6, 2.7, 2.8, 2.9, 4.9, 5.9, 5.10

**Unit Name (13): WLAN Configuration (1 Week)**

- Implement a WLAN using a wireless router and WLC.

CTSO Integration (Workplace Skills) Teamwork, Cooperation Gets the Job Done

Professional Skills: Legal and Ethical practices 8.I

Academic Standards: ELA.11-12.RI.2

Technical Standard: 200-301 2.1, 2.2, 2.3, 2.7, 2.8, 2.9, 4.3, 4.4, 4.8, 4.9, 5.9, 5.10

**Unit Name (14): Routing Concepts (.5 Week)**

- Explain how routers use information in packets to make forwarding decisions.

CTSO Integration (Workplace Skills) Teamwork, Cooperation Gets the Job Done

Professional Skills: Thinking and Innovation 3.E

Academic Standards: ELA.11-12.RI.2

Technical Standard: ADE Network Security 15.1200.30.8(8.1-8.12), 200-301 2.3, 2.7, 2.8, 3.1, 3.2, 3.3, 3.4, 4.8

**Unit Name (15): IP Static Routing (1 Week)**

- Configure IPv4 and IPv6 static routes.

CTSO Integration (Workplace Skills) Teamwork, Leading and Following is a Two-way Street

Professional Skills: Thinking and Innovation 3.E

Academic Standards: A1.A-SSE.B.3

Technical Standard: 200-301 3.1, 3.2, 3.3

**Unit Name (16): Troubleshoot Static and Default Routes (1 Week)**

- Troubleshoot Static and Default Routes

CTSO Integration (Workplace Skills) Teamwork, Leading and Following is a Two-way Street

Professional Skills: Thinking and Innovation 3.C

Academic Standards: A1.A-SSE.B.3

Technical Standard: 200-301 2.1, 3.1, 3.2, 3.3, 4.6

**Year 2- Semester 2**

**ITS 202 - IT Security**

(19 weeks)

**Enterprise Networking, Security, and Automation v7 (12 Weeks)**

**Cisco Certified Network Associate (CCNA) (200-301)**

**Unit Name (1): Single-Area OSPFv2 Concepts (.5 Week)**

- Explain how single-area OSPF operates in both point-to-point and broadcast multiaccess networks.

CTSO Integration (Workplace Skills) Teamwork, Leading and Following is a Two-way Street

Professional Skills: Thinking and Innovation 3.E

Academic Standards: ELA.11-12.RI.2

Technical Standard: 200-301 6.1

**Unit Name (2): Single-Area OSPFv2 Configuration (1 Week)**

- Implement single-area OSPFv2 in both point-to-point and broadcast multiaccess networks.

CTSO Integration (Workplace Skills) Teamwork, Leading and Following is a Two-way Street

Professional Skills: Thinking and Innovation 3.E

Academic Standards: ELA.11-12.RI.2

Technical Standard: 200-301 6.1

**Unit Name (3): Network Security Concepts (.5 Week)**

- Explain how vulnerabilities, threats, and exploits can be mitigated to enhance network security

CTSO Integration (Workplace Skills) Teamwork, Leading and Following is a Two-way Street

Professional Skills: Thinking and Innovation 3.E

Academic Standards: ELA.11-12.SL.4, ELA.11-12.SL.6

Technical Standard: ADE Network Security 15.1200.30.3(3.1-3.11), 200-301 5.1, 5.3, 5.4, 5.6, 5.7

**Unit Name (4): ACL Concepts (1 Week)**

● Explain how ACLs are used as part of a network security policy.

CTSO Integration (Workplace Skills) Teamwork, Trust Matters

Professional Skills: Thinking and Innovation 3.E

Academic Standards: ELA.11-12.RI.2

Technical Standard: ADE Network Security 15.1200.30.3(3.1-3.11), 200-301 5.6

**Unit Name (5): ACLs for IPv4 Configuration (1 Week)**

● Implement IPv4 ACLs to filter traffic and secure administrative access.

CTSO Integration (Workplace Skills) Teamwork, Trust Matters

Professional Skills: Thinking and Innovation 3.EA

Academic Standards: ELA.11-12.RI.2

Technical Standard: ADE Network Security 15.1200.30.10(10.1-10.9), 200-301 5.4, 5.6, 5.7

**Unit Name (6): NAT for IPv4 (1 Week)**

● Configure NAT services on the edge router to provide IPv4 address scalability

CTSO Integration (Workplace Skills) Teamwork, Trust Matters

Professional Skills: Thinking and Innovation 3.EA

Academic Standards: Thinking and Innovation 3.E

Technical Standard: ADE Network Security 15.1200.30.5(5.1-5.6), 200-301 5.7

**Unit Name (7): WAN Concepts (1 Week)**

● Explain how WAN access technologies can be used to satisfy business requirements.

CTSO Integration (Workplace Skills) Teamwork, Trust Matters

Professional Skills: Thinking and Innovation 3.E

Academic Standards: ELA.11-12.RI.2

Work-based Learning: N/A

Technical Standard: 200-301 5.5

**Unit Name (8): VPN and IPsec Concepts (1 Week)**

● Explain how VPNs and IPsec secure site-to-site and remote access connectivity.

CTSO Integration (Technical Skills) Service Orientation, Everyone is a Customer

Professional Skills: Thinking and Innovation 3.E

Academic Standards: ELA.11-12.RI.2

Work-based Learning: AFCEA Midnight Sun Competition

Technical Standard: ADE Network Security 15.1200.30.10(10.1-10.9), 200-301 5.3, 5.4, 5.8

**Unit Name (9): QoS Concepts (1 Week)**

● Explain how networking devices implement QoS.

CTSO Integration (Technical Skills) Service Orientation, Everyone is a Customer

Professional Skills: Thinking and Innovation 3.E

Academic Standards: ELA.11-12.RI.2

Technical Standard: 200-301 5.6

**Unit Name (10): Network Management (1 Week)**

● Implement protocols to manage the network.

CTSO Integration (Technical Skills) Service Orientation, Everyone is a Customer

Professional Skills: N/A

Academic Standards: ELA.11-12.RI.2

Work-based Learning: Mock Interview

Technical Standard: ADE Network Security 15.1200.30.1(1.1-1.4), 200-301 5.2, 5.3, 5.4, 5.7

**Unit Name (11): Network Design (1 Week)**

● Troubleshoot enterprise networks



CTSO Integration (Technical Skills) Service Orientation, Be All You Can Be at Work  
Professional Skills: Thinking and Innovation 3.A, 3B  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: ADE Network Security 15.1200.30.11(11.1-11.6), 200-301 5.6

**Unit Name (12): Network Troubleshooting (1 Week)**

●Troubleshoot enterprise networks  
CTSO Integration (Technical Skills) Service Orientation, Be All You Can Be at Work  
Professional Skills: Thinking and Innovation 3.A, 3C  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: ADE Network Security 15.1200.30.11(11.1-11.6), 200-301 5.6, 5.7, 6.1

**Unit Name (13):Network Virtualization (1 Week)**

●Explain the purpose and characteristics of network virtualization  
CTSO Integration (Technical Skills) Service Orientation, Be All You Can Be at Work  
Professional Skills: Thinking and Innovation 3.E  
Academic Standards: ELA.11-12.RI.2  
Work-based Learning: Mock Business/Industry Project - NICE Challenge (24 hours)  
Technical Standard: 200-301 5.7, 6.1, 6.2

**Unit Name (14): Network Automation (1 Week)**

●Explain how network automation is enabled through RESTful APIs and configuration management tools.  
CTSO Integration (Technical Skills) Service Orientation, Be All You Can Be at Work  
Professional Skills: Thinking and Innovation 3.E  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: ADE Network Security 15.1200.30.11(11.1-11.6), 200-301 5.1, 5.4, 5.8, 6.1, 6.3, 6.4, 6.5, 6.6, 6.7

**TestOut Security Pro (6 Weeks)**

**Certification: CompTIA Security+ (SY0-501), TestOut Security Pro Certification**

**Unit Name (1): Introduction (1 Day)**

●Security Overview  
CTSO Integration (Technical Skills) Professional Development, Taking Action/Professional Growth  
Professional Skills: Thinking and Innovation 3.A  
Academic Standards: ELA.11-12.RI.2  
Work-based Learning: Guest Speaker (2 hours)  
Technical Standard: ADE Network Security 15.1200.30.2(2.1-2.7)

**Unit Name (2): Security Basics (.5 Week)**

●Explain threat actor type/attributes, Explain penetration testing concepts, Compare/contrast cryptography, Summarize basic concepts of forensics  
CTSO Integration (Technical Skills) Professional Development, Taking Action/Professional Growth  
Professional Skills: Intergenerational and cross-cultural competence 6.A  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: SY0-501 1.3, 1.4, 2.2, 3.1, 4.1, 4.4, 5.1, 5.4, 5.5, 6.1, TO 1.3, 1.4, 2.2, 3.1, 4.1, 4.4, 5.1, 5.4, 5.5. 6.1

**Unit Name (3): Policies, Procedures & Awareness (.5 Week)**

●Explain the importance of policies, plans and procedures related to organizational security, Given a scenario, implement secure systems design  
CTSO Integration (Technical Skills) Professional Development, Taking Action/Professional Growth  
Professional Skills: Collaboration: 2.B, Thinking and Innovation 3.D  
Academic Standards: N/A  
Technical Standard: ADE Network Security 15.1200.30.4(4.1-4.4), SY0-501 1.2, 2.5, 3.3, 3.6, 4.4, 5.1, 5.2, 5.3, 5.6, 5.8, TO 1.2, 2.5, 3.3. 3.6, 4.4, 5.1, 5.2, 5.3, 5.6, 5.8

**Unit Name (4): Physical (.5 Week)**

● Given a scenario, implement secure network architecture concepts  
CTSO Integration (Technical Skills) Professional Development, Investing In Yourself  
Professional Skills: Intergenerational and cross-cultural competence 6.C  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: SY0-501 1.2, 2.7, 3.2, 3.9, TO 1.2, 2.7, 3.2, 3.9

**Unit Name (5): Perimeter (.5 Week)**

● Install and configure network components, both hardware and software-based, to support organizational security  
CTSO Integration (Technical Skills) Professional Development, Investing In Yourself  
Professional Skills: Collaboration 2.C  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: SY0-501 1.2, 1.4, 1.6, 2.1, 2.3, 2.4, 3.2, 6.3, TO 1.2, 1.4, 1.6, 2.1, 2.3, 2.4, 3.2, 6.3

**Unit Name (6): Network (.5 Week)**

● Given a scenario, use appropriate software tools to assess the security posture of an organization, Given a scenario, install and configure identity and access services  
CTSO Integration (Technical Skills) Professional Development, Taking Action/Professional Growth  
Professional Skills: Collaboration 2.C  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: ADE Network Security 15.1200.30.1(1.1-1.4), 15.1200.30.3, SY0-501 1.1, 1.2, 1.4, 1.5, 1.6, 2.1, 2.2, 2.6, 3.2, 3.3, 3.7, 4.2, 5.3, TO 1.1, 1.2, 1.4, 1.5, 1.6, 2.1, 2.2, 2.6, 3.2, 3.3, 3.7, 4.2, 5.3

**Unit Name (7): Host (1 Week)**

● Given a scenario, differentiate common account management practices, Summarize cloud and virtualization concepts  
CTSO Integration (Technical Skills) Professional Development, Investing In Yourself  
Professional Skills: Thinking and Innovation 3.E  
Academic Standards: ELA.11-12.RI.2  
Work-based Learning: Mock Business/Industry Project - NICE Challenge 48 hour event cross campus (Cybersecurity event with Industry)  
Technical Standard: SY0-501 1.1, 1.2, 1.4, 1.6, 2.1, 2.2, 2.3, 2.4, 2.5, 3.2, 3.3, 3.5, 3.7, 4.4, 5.1, 6.4, TO 1.1, 1.2, 1.4, 1.6, 2.1, 2.2, 2.3, 2.4, 2.5, 3.2, 3.3, 3.5, 3.7, 4.4, 5.1, 6.4

**Unit Name (8): Application (.5 Week)**

● Explain the importance of secure staging deployment concepts  
CTSO Integration (Technical Skills) Professional Development, Investing In Yourself  
Professional Skills: Thinking and Innovation 3.E  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: SY0-501 1.2, 1.6, 2.4, 3.3, 3.4, 3.6, 3.9, 4.1, 4.3, 4.4, TO 1.2, 1.6, 2.4, 3.3, 3.4, 3.6, 3.9, 4.1, 4.3, 4.4

**Unit Name (9): Data (2 Weeks)**

● Given a scenario, carry out data security and privacy practices  
Compare and contrast basic concepts of cryptography  
CTSO Integration (Technical Skills) Professional Development, Investing In Yourself  
Professional Skills: Intergenerational and cross-cultural competence 6.B  
Academic Standards: ELA.11-12.RI.2  
Technical Standard: SY0-501 1.2, 2.1, 2.2, 2.3, 2.4, 2.6, 3.3, 3.7, 3.8, 5.1, 5.2, 5.6, 5.8, 6.1, 6.2, 6.4, TO 1.2, 2.1, 2.2, 2.3, 2.4, 2.6, 3.3, 3.7, 3.8, 5.1, 5.2, 5.6, 5.8, 6.1, 6.2, 6.4

**ADE Technical Skills Assessment (TSA)  
Network Security 15.1200.3**

Common AZCCR Math Standards (CAMS)

