Monroe Career & Technical Institute
Course: Computer Networking and Security

Unit Name: PA100 - PERSONAL AND ENVIRONMENTAL SAFETY

Unit Number: PA100

Dates: Spring 2016 **Hours:** 20.00

Last Edited By: Computer Networking & Security (05-11-2016)

Unit Description / Objectives:

Student will know and be able to follow classroom, industry, and workplace procedures and safety rules.

Tasks:

PA101 - List common causes of accidents and injuries in a computer facility.

PA102 - Wear personal protective equipment.

PA103 - List and identify safety hazard symbols.

PA104 - Review Safety Data Sheets (SDS) and explain their requirements in handling hazardous materials.

PA105 - Describe types of fire extinguishers and explain which types to use for extinguishing various fires.

PA106 - Demonstrate safe procedures to follow when lifting and carrying heavy objects.

PA107 - Describe the importance of safety as it relates to environmental issues.

PA108 - Identify potential hazards when working with power supplies.

PA109 - Identify proper disposal procedures for batteries and display devices.

PA110 - Identify proper disposal procedures for chemical solvents and pressurized cans.

PA111 - Identify and prevent Electro Static Discharge conditions.

PA112 - Describe the meaning and importance of the Energy Star Rating System.

PA113 - Configure a computer's power management settings to maximize energy efficiency.

PA114 - Maintaining a safe work area to avoid common accidents and injuries.

Standards / Assessment Anchors

Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

KEY IDEAS/DETAILS GRADES 9-10-11-12
Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.

Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.

Standard CC.3.5.9-10.C / Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.

CRAFT & STRUCTURE GRADES 9-10-11-12
Standard CC.3.5.9-10. D / Standard CC.3.5.11-12.D Determine the meaning of symbols, key terms, and other domain specific words.

Standard CC.3.5.9-10.E / Standard CC.3.5.11-12.E Analyze the structure of the relationships among concepts in a text, etc.

Standard CC.3.5.9-10.F / Standard CC.3.5.11-12.F Analyze the author's purpose in providing an explanation, describing a procedure...and Analyze the structure of the relationships among concepts in a text.

INTEGRATE KNOWLEDGE & IDEAS GRADES 9-10
Standard CC.3.5.9-10.G Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).

Standard CC.3.5.9-10. H Assess the reasoning in a text to support the author's claim for solving a technical problem.

Standard CC.3.5.9-10. I Compare and contrast findings presented in a text to those from other sources, etc.

INTEGRATE KNOWLEDGE & IDEAS GRADES 11-12
Standard CC.3.5.11-12. G Integrate and evaluate multiple sources of information presented in diverse formats...to solve a problem.

Standard CC.3.5.11-12. H Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible.

Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.

RANGE OF READING GRADES 9-10-11-12
Standard CC.3.5.9-10.J / Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11- 12, read and comprehend technical texts independently and proficiently.

Instructional Activities:

Knowledge:

Complete textbook assignment(s)
Complete computer assignment(s) as needed
Complete laboratory activity and associated worksheet assignment
Complete activities assigned for TestOut-LabSim
Participate in theory lesson and respond to questions

Participate in group activities according to specific content assignment
Take notes during theory lesson and keep a notebook
Complete Study Guide according to instructions
Demonstrate knowledge of safety information to ninety percent competency

Skill:

Complete laboratory activity and associated worksheet assignment
Complete activities assigned for TestOut-LabSim
Complete tutorial software assignments
Demonstrate proper knowledge and use of safety produces and tools

Remediation:

Make corrections to graded work
Re-teach major concepts
Review with teacher assistance
Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Study groups
Review games
Reading comprehension packets
Placing events in a time line
Create a chart
Retest or alternative assessment
Technology integration
Study guides
Computer assisted instruction
Checklists

Enrichment:

Research an approved topic
Do live work
Use TestOut for review
Conduct a safety review of the laboratory area and classroom
Live work

Special Adaptations:

- Extended Time (assignments and/or testing)
- Graphic Organizer
- Chunking of Assignments/Material
- Preferential Seating
- Directions/Comprehension Check (frequent checks for understanding)
- Study Guide
- Directions and/or Tests Read Aloud
- Adapted Tests and/or Assignments
- Use of Calculator
- Taking Tests in Alternate Setting (or if requested)
- Verbal/Gestural Redirection (prompts to remain on task)
- Drill and Practice (Repetition of Material)
- No Penalization for Spelling
- Copy of Teacher/Student Notes/Skeleton Notes
- Small Group Instruction
- Provide Visual Model to Accompany Verbal Directions (Written/Oral Directions)
- Use of Daily Planner/Assignment Book (monitor use of)
- Teacher Modeling
- Use of Computer (Access to)
- Wait Time

- Access to School Counselor
- Use of Highlighter/Highlighted Text
- Provide Frequent Feedback
- Variety of Assessment Methods
- Use of Assistive Device (i.e. notepad, laptop, etc.)
- Highly Structured Classroom
- Syllabus for Major Projects
- Grading Rubric
- Communication Regarding Behavior & Consequences (PBS)
- Clear Language for Directions
- Use of Multisensory Approach
- Provide Opportunities to Retest
- Frequent Review Sessions
- Use a variety of Modalities when Introducing Skills/Concepts
- Books on Tape or CD
- Allow Oral Answers for Testing
- Provide Editing Assistance
- Copies of Text for Home
- De-Escalation Opportunities
- Cue for Oral Response
- Text to Speech (other than for NOCTI)
- Daily Classwork Check
- Encourage Student to Check Work Before Turning In
- Opportunities for Repeated Practice of MATH Skills
- Provide repetition During Initial Instruction
- Provide Verbal and Written Directions
- All Vocabulary to be Defined Before Testing
- Testing - Allow Dictation of Lengthy Answers
- Monitor Speed/Accuracy in which Student Completes Assignment
- Access to Closed Captioning as Available (upon request)
- Encouragement to Participate in Positive Leadership Roles
- Student Self-Evaluation for Behavior
- Exempt from reading Aloud in Front of Peers

Safety:

Student must:
Use computer equipment in an ergonomic fashion
Handle material in a safe and work like manner
Use protective clothing and equipment
Use hand tools in a safe manner
Use adequate ventilation when working in enclosed area
Follow manufacturer's directions when using any product, tool, equipment, etc.
Use proper safety precautions when using /operating hand tools
Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times
Follow proper classroom procedures

Assessment:

TestOut Test
Worksheets
Quizzes
Pre/Post Tests
Essays
Focused Free Write
Summaries
Log/Journal
Time Cards
Writing Activities
Video/DVD Worksheets
Rubrics
Check Lists
Role-play Activities
Debates
Oral Presentation
Group Projects
Research Papers
Current Events
Any content related assessment
Portfolio

Resources/Equipment:

- MSDS binder
- Fire extinguisher
- Internet access
- Whiteboard
- LCD Projector
- Personal Computer
- Cisco Router
- Cisco Firewall
- Switch
- Hub
- Ribcage
- Toolkit
- Antistatic Wriststrap
- Multimeter
- Cable Tester
- Cable Termination Kit
- Network Analyzer
- Scanner
- Hewlett Packard Server
- Laptop
- Power Supply Tester
- Power On Self-Test (POST) Card
- Laser Printer
- Dot Matrix Printer
- Inkjet Printer
- Digital Camera
- Webcam
- Uninterruptible Power Supply (UPS)
- Microsoft Disk Operating System (DOS)
- Microsoft Windows XP, Vista, 7 Operating Systems
- Linux/Unix Operating Systems
- Wireless Access Point
- TestOut Software
- Microsoft Office
- ALICE

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CTECH Copper & Fiber Program

Hyperlinks:

www.schoology.com

www.netacad.com

www.testout.com

www.professormesser.com

Monroe Career & Technical Institute
Course: Computer Networking and Security

Unit Name: PA200 - DEMONSTRATE KNOWLEDGE OF COMPUTER HARDWARE

Unit Number: PA200

Dates: Spring 2016 **Hours:** 180.00

Last Edited By: Computer Networking & Security (05-11-2016)

Description / Objectives:

Student will know and be able to identify, configure, upgrade, troubleshoot, and maintain computer hardware.

Tasks:

PA201 - Categorize storage devices and backup media.

PA202 - Categorize the different types of computer cases.

PA203 - Explain motherboard components, types and features.

PA204 - Categorize power supplies types and characteristics.

PA205 - Explain the purpose and characteristics of CPUs and their features.

PA206 - Explain cooling methods and devices.

PA207 - Compare and contrast memory types, characteristics and their purpose.

PA208 - Distinguish between the different display devices and their characteristics.

PA209 - Summarize the function and types of adapter cards.

PA210 - Install and configure peripherals and input devices.

PA211 - Install, configure and optimize laptop components and features.

PA212 - Install and configure printers.

PA213 - Given a scenario, install, configure and maintain personal computer components.

PA214 - Given a scenario, detect problems, troubleshoot, and repair/replace desk top and laptop computer components.

PA215 - Given a scenario, diagnose and repair common printer issues.

Standards / Assessment Anchors

Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

KEY IDEAS/DETAILS GRADES 9-10-11-12
Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.

Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.

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CRAFT & STRUCTURE GRADES 9-10-11-12
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INTEGRATE KNOWLEDGE & IDEAS GRADES 9-10
Standard CC.3.5.9-10.G Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).

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INTEGRATE KNOWLEDGE & IDEAS GRADES 11-12
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RANGE OF READING GRADES 9-10-11-12
Standard CC.3.5.9-10.J / Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11- 12, read and comprehend technical texts independently and proficiently.

Connecting Anchor/Standard:

- Pennsylvania Core Standards for Mathematics Standard 2.0

Supporting Anchor/Standards:

NUMBERS AND OPERATIONS
Standard 2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems.

Standard 2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multistep problems.

Standard 2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

Standard 2.1.HS.F.6 Extend the knowledge of arithmetic operations and apply to complex numbers

Instructional Activities:

Knowledge:

- Complete textbook assignment(s)
- Complete computer assignment(s) as needed
- Complete laboratory activity and associated worksheet assignment
- Complete activities assigned for TestOut-LabSim
- Participate in theory lesson and respond to questions
- Participate in group activities according to specific content assignment
- Take notes during theory lesson and keep a notebook
- Complete Study Guide according to instructions

Skill:

- Complete laboratory activity and associated worksheet assignment
- Complete activities assigned for TestOut-LabSim
- Complete tutorial software assignments
- Install and configure storage devices
- Configure a RAID array
- Install and configure a motherboard, CPU, and RAM
- Install and configure a power supply
- Install and configure different display devices
- Install and configure peripheral devices
- Install, configure, and troubleshoot a printer
- Disassemble and reassemble a desktop computer
- Disassemble and reassemble a laptop

Remediation:

- Make corrections to graded work
- Re-teach major concepts
- Review with teacher assistance
- Study group
- Worksheets
- Individual tutoring
- Group tutoring
- Peer tutoring
- Study groups
- Review games
- Reading comprehension packets
- Placing events in a time line
- Create a chart
- Retest or alternative assessment
- Technology integration
- Study guides
- Computer assisted instruction
- Checklists

Enrichment:

- Research an approved topic
- Do live work
- Use TestOut for review
- Conduct a safety review of the laboratory area and classroom
- Live work

Special Adaptations:

- Extended Time (assignments and/or testing)
- Graphic Organizer
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- No Penalization for Spelling
- Copy of Teacher/Student Notes/Skeleton Notes

- Small Group Instruction
- Provide Visual Model to Accompany Verbal Directions (Written/Oral Directions)
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Assessment:

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Quizzes
Pre/Post Tests
Essays
Focused Free Write
Summaries
Log/Journal
Time Cards
Writing Activities
Video/DVD Worksheets
Rubrics

Check Lists
Role-play Activities
Debates
Oral Presentation
Group Projects
Research Papers
Current Events
Any content related assessment
Portfolio

Resources/Equipment:

SDS binder
Fire extinguisher
Internet access
Whiteboard
LCD Projector
Personal Computer
Cisco Router
Cisco Firewall
Switch
Hub
Ribcage
Toolkit
Antistatic Wriststrap
Multimeter
Cable Tester
Cable Termination Kit
Network Analyzer
Scanner
Hewlett Packard Server
Laptop
Power Supply Tester
Power On Self-Test (POST) Card
Laser Printer
Dot Matrix Printer
Inkjet Printer
Digital Camera
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Microsoft Disk Operating System (DOS)
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Wireless Access Point
TestOut Software
Microsoft Office
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Monroe Career & Technical Institute
Course: Computer Networking and Security

Unit Name: PA300 - TROUBLESHOOTING, REPAIR AND MAINTENANCE

Unit Number: PA300

Dates: Spring 2016 **Hours:** 40.00

Last Edited By: Computer Networking & Security (05-11-2016)

Unit Description / Objectives:

Student will demonstrate knowledge of troubleshooting theory and apply it to computer hardware and software problems.

Tasks:

PA301 - Describe and explain the troubleshooting theory.

PA302 - Describe and explain and interpret common hardware and operating system symptoms and their causes.

PA303 - Describe and determine the troubleshooting methods and tools for printers.

PA304 - Describe and interpret common laptop issues and determine the appropriate basic troubleshooting method.

PA305 - Given a scenario, integrate common preventative maintenance techniques.

PA306 - Compare and contrast network troubleshooting with hardware/software troubleshooting.

Standards / Assessment Anchors

Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

KEY IDEAS/DETAILS GRADES 9-10-11-12
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Instructional Activities:

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Participate in group activities according to specific content assignment
Take notes during theory lesson and keep a notebook
Complete Study Guide according to instructions

Skill:

Complete laboratory activity and associated worksheet assignment
Complete activities assigned for TestOut-LabSim
Complete tutorial software assignments
Troubleshoot a PC computer
Troubleshoot a laptop
Troubleshoot a printer
Troubleshoot operating system issues

Remediation:

Make corrections to graded work
Re-teach major concepts
Review with teacher assistance
Study group
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Group tutoring
Peer tutoring
Study groups
Review games
Reading comprehension packets
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Enrichment:

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Special Adaptations:

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Time Cards
Writing Activities
Video/DVD Worksheets
Rubrics
Check Lists
Role-play Activities
Debates
Oral Presentation
Group Projects
Research Papers
Current Events
Any content related assessment
Portfolio

Resources/Equipment:

- MSDS binder
- Fire extinguisher
- Internet access
- Whiteboard
- LCD Projector
- Personal Computer
- Cisco Router
- Cisco Firewall
- Switch
- Hub
- Ribcage
- Toolkit
- Antistatic Wriststrap
- Multimeter
- Cable Tester
- Cable Termination Kit
- Network Analyzer
- Scanner
- Hewlett Packard Server
- Laptop
- Power Supply Tester
- Power On Self-Test (POST) Card
- Laser Printer
- Dot Matrix Printer
- Inkjet Printer
- Digital Camera
- Webcam
- Uninterruptible Power Supply (UPS)
- Microsoft Disk Operating System (DOS)
- Microsoft Windows XP, Vista, 7 Operating Systems
- Linux/Unix Operating Systems
- Wireless Access Point
- TestOut Software
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Monroe Career & Technical Institute
Course: Computer Networking and Security

Unit Name: PA400 - OPERATING SYSTEMS AND SOFTWARE

Unit Number: PA400

Dates: Spring 2016 **Hours:** 80.00

Last Edited By: Computer Networking & Security (05-11-2016)

Unit Description / Objectives:

Student will know and be able to identify, configure, upgrade, troubleshoot, and maintain computer software.

Tasks:

PA401 - Compare and contrast the different operating systems and their features.

PA402 - Given a scenario, demonstrate proper use of user interfaces.

PA403 - Explain the process and steps to install and configure an operating system.

PA404 - Explain the basics of boot sequences, methods and startup utilities.

PA405 - Select the appropriate commands and options to troubleshoot and resolve problems.

PA406 - Differentiate between various operating system directory structures.

PA407 - Identify and use system utilities/tools and evaluate the results.

PA408 - Evaluate and resolve common OS and software issues.

PA409 - Explain the administration of local users, groups and institute local security policy.

PA410 - Compare and contrast a network operating system (NOS) with a workstation operating system (OS).

Standards / Assessment Anchors

Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

KEY IDEAS/DETAILS GRADES 9-10-11-12
Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.

Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.

Standard CC.3.5.9-10.C / Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.

CRAFT & STRUCTURE GRADES 9-10-11-12
Standard CC.3.5.9-10. D / Standard CC.3.5.11-12.D Determine the meaning of symbols, key terms, and other domain specific words.

Standard CC.3.5.9-10.E / Standard CC.3.5.11-12.E Analyze the structure of the relationships among concepts in a text, etc.

Standard CC.3.5.9-10.F / Standard CC.3.5.11-12.F Analyze the author's purpose in providing an explanation, describing a procedure...and Analyze the structure of the relationships among concepts in a text.

INTEGRATE KNOWLEDGE & IDEAS GRADES 9-10
Standard CC.3.5.9-10.G Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).

Standard CC.3.5.9-10. H Assess the reasoning in a text to support the author's claim for solving a technical problem.

Standard CC.3.5.9-10. I Compare and contrast findings presented in a text to those from other sources, etc.

INTEGRATE KNOWLEDGE & IDEAS GRADES 11-12
Standard CC.3.5.11-12. G Integrate and evaluate multiple sources of information presented in diverse formats...to solve a problem.

Standard CC.3.5.11-12. H Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible.

Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.

RANGE OF READING GRADES 9-10-11-12
Standard CC.3.5.9-10.J / Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11- 12, read and comprehend technical texts independently and proficiently.

Focus Anchor/Standard #2:

- Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6

Supporting Anchor/Standards:

TEXT TYPES AND PURPOSE GRADES 9-10-11-12
Standard CC.3.6.9-10.A Standard CC.3.6.11-12.A Write arguments focused on discipline specific content.

Standard CC.3.6.9-10.B Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc.

PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10-11-12
Standard CC.3.6.9-10.C Standard CC.3.6.11-12 C Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D Standard CC.3.6.11-12.D Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.9-10.E Standard CC.3.6.11-12.E. Use technology, including the internet, to produce, publish, and update individual or shared writing products.

RESEARCH GRADES 9-10-11-12
Standard CC.3.6.9-10.F Standard CC.3.6.11-12.F Conduct short and more sustained research to answer a question or solve a problem.

Standard CC.3.6.9-10.G. Standard CC.3.6.11-12.G Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation.

Standard CC.3.6.9-10.H. Standard CC.3.6.11-12.H. Draw evidence from informational texts to support analysis, reflection, and research.

RANGE OF WRITING GRADES 9-10-11-12
Standard CC.3.5.9-10.I & Standard CC.3.5.11-12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiences...etc.

Connecting Anchor/Standard:

- Pennsylvania Core Standards for Mathematics Standard 2.0

Supporting Anchor/Standards:

NUMBERS AND OPERATIONS
Standard 2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems.

Standard 2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multistep problems.

Standard 2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

Standard 2.1.HS.F.6 Extend the knowledge of arithmetic operations and apply to complex numbers

Instructional Activities:

Knowledge:

Complete textbook assignment(s)
Complete computer assignment(s) as needed
Complete laboratory activity and associated worksheet assignment
Complete activities assigned for TestOut-LabSim
Participate in theory lesson and respond to questions
Participate in group activities according to specific content assignment
Take notes during theory lesson and keep a notebook
Complete Study Guide according to instructions

Skill:

Complete laboratory activity and associated worksheet assignment
Complete activities assigned for TestOut-LabSim
Complete tutorial software assignments
Install and configure an operating system
Configure a user interface
Troubleshoot and resolve operating system problems
Create users and groups
Create and implement a local security policy

Remediation:

Make corrections to graded work
Re-teach major concepts
Review with teacher assistance
Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Study groups
Review games
Reading comprehension packets
Placing events in a time line
Create a chart
Retest or alternative assessment
Technology integration
Study guides
Computer assisted instruction
Checklists

Enrichment:

Research an approved topic
Do live work
Use TestOut for review
Conduct a safety review of the laboratory area and classroom
Live work

Special Adaptations:

- Extended Time (assignments and/or testing)
- Graphic Organizer
- Chunking of Assignments/Material
- Preferential Seating
- Directions/Comprehension Check (frequent checks for understanding)
- Study Guide
- Directions and/or Tests Read Aloud
- Adapted Tests and/or Assignments
- Use of Calculator
- Taking Tests in Alternate Setting (or if requested)
- Verbal/Gestural Redirection (prompts to remain on task)
- Drill and Practice (Repetition of Material)
- No Penalization for Spelling
- Copy of Teacher/Student Notes/Skeleton Notes
- Small Group Instruction
- Provide Visual Model to Accompany Verbal Directions (Written/Oral Directions)
- Use of Daily Planner/Assignment Book (monitor use of)
- Teacher Modeling
- Use of Computer (Access to)
- Wait Time
- Access to School Counselor
- Use of Highlighter/Highlighted Text
- Provide Frequent Feedback
- Variety of Assessment Methods
- Use of Assistive Device (i.e. notepad, laptop, etc.)
- Highly Structured Classroom
- Syllabus for Major Projects
- Grading Rubric
- Communication Regarding Behavior & Consequences (PBS)
- Clear Language for Directions
- Use of Multisensory Approach
- Provide Opportunities to Retest

- Frequent Review Sessions
- Use a variety of Modalities when Introducing Skills/Concepts
- Books on Tape or CD
- Allow Oral Answers for Testing
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- Copies of Text for Home
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- Testing - Allow Dictation of Lengthy Answers
- Monitor Speed/Accuracy in which Student Completes Assignment
- Access to Closed Captioning as Available (upon request)
- Encouragement to Participate in Positive Leadership Roles
- Student Self-Evaluation for Behavior
- Exempt from reading Aloud in Front of Peers

Safety:

Student must:
Use computer equipment in an ergonomic fashion
Handle material in a safe and work like manner
Use protective clothing and equipment
Use hand tools in a safe manner
Use adequate ventilation when working in enclosed area
Follow manufacturer's directions when using any product, tool, equipment, etc.
Use proper safety precautions when using /operating hand tools
Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times
Follow proper classroom procedures

Assessment:

TestOut Test
Worksheets
Quizzes
Pre/Post Tests
Essays
Focused Free Write
Summaries
Log/Journal
Time Cards
Writing Activities
Video/DVD Worksheets
Rubrics
Check Lists
Role-play Activities
Debates
Oral Presentation
Group Projects
Research Papers
Current Events
Any content related assessment
Portfolio

Resources/Equipment:

SDS binder
Fire extinguisher
Internet access
Whiteboard
LCD Projector
Personal Computer
Cisco Router
Cisco Firewall
Switch
Hub
Ribcage
Toolkit
Antistatic Wriststrap
Multimeter
Cable Tester
Cable Termination Kit
Network Analyzer
Scanner
Hewlett Packard Server
Laptop
Power Supply Tester
Power On Self-Test (POST) Card
Laser Printer
Dot Matrix Printer
Inkjet Printer
Digital Camera
Webcam
Uninterruptible Power Supply (UPS)
Microsoft Disk Operating System (DOS)
Microsoft Windows XP, Vista, 7 Operating Systems
Linux/Unix Operating Systems
Wireless Access Point
TestOut Software
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Cisco Academy Labs

CTECH Copper & Fiber Program

Hyperlinks:

www.schoology.com

www.netacad.com

www.testout.com

www.professormesser.com

Monroe Career & Technical Institute
Course: Computer Networking and Security

Unit Name: PA500 - NETWORK TECHNOLOGIES
Unit Number: PA500

Dates: Spring 2016 **Hours:** 84.00

Last Edited By: Computer Networking & Security (05-11-2016)

Unit Description / Objectives:

Student will know and be able to explain network protocols, ports, addressing formats, routing protocols, the properties of routing, and wireless standards.

Tasks:

PA501 - Explain the function of common networking protocols, such as FTP, TCP/IP suite, DHCP, DNS, etc.

PA502 - Identify commonly used TCP and UDP default ports, including TCP ports: FTP – 20, 21, SSH – 22, TELNET – 23, HTTP – 80, etc.

PA503 - Identify the following address formats, including IPv6, IPv4, MAC addressing.

PA504 - Given a scenario, evaluate the proper use of addressing technologies and addressing schemes, including: subnetting: classful vs. classless, NAT, PAT, SNAT, public vs. private, DHCP, addressing schemes: unicast, multicast, broadcast, etc.

PA505 - Identify common IPv4 and IPv6 routing protocols, including link state, distance vector, and hybrid protocols.

PA506 - Explain the purpose and properties of routing, including IGP vs. EGP, static vs. dynamic, next hop, interpret routing tables and how they pertain to path selection, explain convergence (steady state).

PA507 - Compare the characteristics of wireless communication standards, including 802.11 standards: speeds, distance, channels, frequency, authentication and encryption.

Standards / Assessment Anchors

Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

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Skill:

Complete laboratory activity and associated worksheet assignment
Complete activities assigned for TestOut-LabSim
Complete tutorial software assignments
Write numbers and convert numbers between the binary, decimal, and hexadecimal number systems
Identify and configure the network information for a computer
Classify IP addresses and their subnet mask
Write IP addresses in CIDR notation
Subnet a network
Describe common networking protocols and their associated ports

Remediation:

Make corrections to graded work
Re-teach major concepts
Review with teacher assistance
Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Study groups
Review games
Reading comprehension packets
Placing events in a time line
Create a chart
Retest or alternative assessment
Technology integration
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Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times
Follow proper classroom procedures

Assessment:

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Quizzes
Pre/Post Tests
Essays
Focused Free Write
Summaries
Log/Journal
Time Cards
Writing Activities
Video/DVD Worksheets
Rubrics
Check Lists
Role-play Activities
Debates
Oral Presentation
Group Projects
Research Papers
Current Events
Any content related assessment
Portfolio

Resources/Equipment:

- SDS binder
- Fire extinguisher
- Internet access
- Whiteboard
- LCD Projector
- Personal Computer
- Cisco Router
- Cisco Firewall
- Switch
- Hub
- Ribcage
- Toolkit
- Antistatic Wriststrap
- Multimeter
- Cable Tester
- Cable Termination Kit
- Network Analyzer
- Scanner
- Hewlett Packard Server
- Laptop
- Power Supply Tester
- Power On Self-Test (POST) Card
- Laser Printer
- Dot Matrix Printer
- Inkjet Printer
- Digital Camera
- Webcam
- Uninterruptible Power Supply (UPS)
- Microsoft Disk Operating System (DOS)
- Microsoft Windows XP, Vista, 7 Operating Systems
- Linux/Unix Operating Systems
- Wireless Access Point
- TestOut Software
- Microsoft Office
- ALICE

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www.schoology.com

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www.professormesser.com

Monroe Career & Technical Institute
Course: Computer Networking and Security

Unit Name: PA600 - NETWORK MEDIA AND TOPOLOGIES

Unit Number: PA600

Dates: Spring 2016 **Hours:** 55.00

Last Edited By: Computer Networking & Security (05-11-2016)

Unit Description / Objectives:

Student will know and be able to identify network cables, connectors, and topologies. Student will be able to categorize LAN and WAN technology types. Student will be able to install components of wiring distribution using appropriate wiring standards.

Tasks:

PA601 - Categorize standard cable types and their properties including: UTP, STP, coaxial, fiber; plenum vs. non-plenum properties: transmission speeds, distance, duplex, noise immunity, frequency.

PA602 - Identify common connector types, including UTP, STP, coaxial, and fiber.

PA603 - Identify common physical network topologies.

PA604 - Given a scenario, differentiate and implement appropriate wiring standards, including 568A, 568B, and loopback.

PA605 - Categorize common WAN technology types and properties.

PA606 - Categorize common LAN technology types and ethernet properties: CSMA/CD, broadcast, collision, bonding, speed, distance.

PA607 - Explain common logical network topologies and their characteristics, including peer to peer and client/server.

PA608 - Install components of wiring distribution, including vertical and horizontal cross connects, verify installation and termination.

Standards / Assessment Anchors

Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

KEY IDEAS/DETAILS GRADES 9-10-11-12
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Standard 2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

Standard 2.1.HS.F.6 Extend the knowledge of arithmetic operations and apply to complex numbers

Instructional Activities:

Knowledge:
Complete textbook assignment(s)
Complete computer assignment(s) as needed
Complete laboratory activity and associated worksheet assignment
Complete activities assigned for TestOut-LabSim
Participate in theory lesson and respond to questions
Participate in group activities according to specific content assignment
Take notes during theory lesson and keep a notebook
Complete Study Guide according to instructions

Skill:
Complete laboratory activity and associated worksheet assignment
Complete activities assigned for TestOut-LabSim
Complete tutorial software assignments

Remediation:

Make corrections to graded work
Re-teach major concepts
Review with teacher assistance
Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Study groups
Review games
Reading comprehension packets
Placing events in a time line
Create a chart
Retest or alternative assessment
Technology integration
Study guides
Computer assisted instruction
Checklists

Enrichment:

Research an approved topic
Do live work
Use TestOut for review
Conduct a safety review of the laboratory area and classroom
Live work

Special Adaptations:

- Extended Time (assignments and/or testing)
- Graphic Organizer
- Chunking of Assignments/Material
- Preferential Seating
- Directions/Comprehension Check (frequent checks for understanding)
- Study Guide
- Directions and/or Tests Read Aloud
- Adapted Tests and/or Assignments
- Use of Calculator
- Taking Tests in Alternate Setting (or if requested)
- Verbal/Gestural Redirection (prompts to remain on task)
- Drill and Practice (Repetition of Material)
- No Penalization for Spelling
- Copy of Teacher/Student Notes/Skeleton Notes
- Small Group Instruction
- Provide Visual Model to Accompany Verbal Directions (Written/Oral Directions)
- Use of Daily Planner/Assignment Book (monitor use of)
- Teacher Modeling
- Use of Computer (Access to)
- Wait Time
- Access to School Counselor
- Use of Highlighter/Highlighted Text
- Provide Frequent Feedback
- Variety of Assessment Methods
- Use of Assistive Device (i.e. notepad, laptop, etc.)
- Highly Structured Classroom
- Syllabus for Major Projects
- Grading Rubric
- Communication Regarding Behavior & Consequences (PBS)
- Clear Language for Directions
- Use of Multisensory Approach

- Provide Opportunities to Retest
- Frequent Review Sessions
- Use a variety of Modalities when Introducing Skills/Concepts
- Books on Tape or CD
- Allow Oral Answers for Testing
- Provide Editing Assistance
- Copies of Text for Home
- De-Escalation Opportunities
- Cue for Oral Response
- Text to Speech (other than for NOCTI)
- Daily Classwork Check
- Encourage Student to Check Work Before Turning In
- Opportunities for Repeated Practice of MATH Skills
- Provide repetition During Initial Instruction
- Provide Verbal and Written Directions
- All Vocabulary to be Defined Before Testing
- Testing - Allow Dictation of Lengthy Answers
- Monitor Speed/Accuracy in which Student Completes Assignment
- Access to Closed Captioning as Available (upon request)
- Encouragement to Participate in Positive Leadership Roles
- Student Self-Evaluation for Behavior
- Exempt from reading Aloud in Front of Peers

Safety:

Student must:
Use computer equipment in an ergonomic fashion
Handle material in a safe and work like manner
Use protective clothing and equipment
Use hand tools in a safe manner
Use adequate ventilation when working in enclosed area
Follow manufacturer's directions when using any product, tool, equipment, etc.
Use proper safety precautions when using /operating hand tools
Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times
Follow proper classroom procedures

Assessment:

TestOut Test
Worksheets
Quizzes
Pre/Post Tests
Essays
Focused Free Write
Summaries
Log/Journal
Time Cards
Writing Activities
Video/DVD Worksheets
Rubrics
Check Lists
Role-play Activities
Debates
Oral Presentation
Group Projects
Research Papers
Current Events
Any content related assessment
Portfolio

Resources/Equipment:

MSDS binder
Fire extinguisher
Internet access
Whiteboard
LCD Projector
Personal Computer
Cisco Router
Cisco Firewall
Switch
Hub
Ribcage
Toolkit
Antistatic Wriststrap
Multimeter
Cable Tester
Cable Termination Kit
Network Analyzer
Scanner
Hewlett Packard Server
Laptop
Power Supply Tester
Power On Self-Test (POST) Card
Laser Printer
Dot Matrix Printer
Inkjet Printer
Digital Camera
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Cisco Academy Labs

CTECH Copper & Fiber Program

Hyperlinks:

www.schoology.com

www.netacad.com

www.testout.com

www.professormesser.com

Monroe Career & Technical Institute
Course: Computer Networking and Security

Unit Name: PA700 - NETWORK DEVICES
Unit Number: PA700

Dates: Spring 2016 **Hours:** 51.00

Last Edited By: Computer Networking & Security (05-11-2016)

Unit Description/Objectives:

Student will know and be able to install, configure, and secure, common network connectivity devices.

Tasks:

PA701 - Install, configure and differentiate between common network connectivity devices.

PA702 - Identify the functions of specialized network devices such as, multilayer switch, content switch, IDS/IPS, load balancer, multifunction network devices, DNS server, bandwidth shaper, proxy server, CSU/DSU.

PA703 - Explain the advanced features of a switch such as, PoE, spanning tree, VLAN, trunking, port mirroring, port authentication, etc.

PA704 - Implement a basic wireless network, including client configuration, access point placement and Installation.

PA705 - Configure appropriate encryption, configure channels and frequencies, set ESSID and beacon, verify installation.

Standards / Assessment Anchors

Focus Anchor/Standard #1:

- 13.2.11 E Demonstrate, in the career acquisition process, the application of essential workplace skills/knowledge, such as, but not limited to: commitment, communication, dependability, health/safety, laws and regulations (that is Americans with Disabilities Act, Child Labor Law, Fair Labor Standards Act, OSHA, Material Safety Data Sheets), personal initiative, Self-advocacy, scheduling/time management, team building, technical literacy and technology.

Supporting Anchor/Standards:

3.4.10.C1 Apply the components of the technological design process.

3.4.10.A2 Interpret how systems thinking applies logic and creativity with appropriate comprises in complex real-life problems.

3.4.12.B1 Analyze ethical, social, economic, and cultural considerations as related to the development, selection, and use of technologies.

3.4.10.A1 Illustrate how the development of technologies is often driven by profit and an economic market.

3.4.10.A3 Examine how technology transfer occurs when a new user applies an existing innovation developed for one purpose in a different function.

3.4.10.B1 Compare and contrast how the use of technology involves weighing the trade-offs between the positive and negative effects.

3.4.10.B2 Demonstrate how humans devise technologies to reduce the negative consequences of other technologies.

3.4.10.B3 Compare and contrast how a number of different factors, such as advertising, the strength of the economy, the goals of a company and the latest fads, contribute to shaping the design of and demand for various technologies.

3.4.10.B4 Recognize that technological development has been evolutionary, the result of a series of refinements to a basic invention.

3.2.12.B5 Research how principles of wave transmissions are used in a wide range of technologies. Research technologies that incorporate principles of wave transmission.

3.4.12.E4 Synthesize the effects of information and communication systems and subsystems as an integral part of the development of the Information Age.

Focus Anchor/Standard #2:

- CC.3.5.11-12.C. Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

Supporting Anchor/Standards:

CC.3.5.9-10.A. Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.

CC.2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems.

CC.2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multi-step problems.

CC.2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

CC.2.1.HS.F.6 Extend the knowledge of arithmetic operations and apply to complex numbers.

Connecting Anchor/Standard:

- CC.2.1.6.E.2 Identify and choose appropriate processes to compute fluently with multi-digit numbers.

Supporting Anchor/Standards:

CC.2.1.7.D.1 Analyze proportional relationships and use them to model and solve real-world and mathematical problems.

CC.2.2.7.B.3 Model and solve real-world and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations.

CC.2.3.7.A.1 Solve real-world and mathematical problems involving angle measure, area, surface area, circumference, and volume.

CC.2.3.8.A.1 Apply the concepts of volume of cylinders, cones, and spheres to solve real-world and mathematical problems.

CC.2.4.5.A.1 Solve problems using conversions within a given measurement system.

Instructional Activities:

Knowledge:

Complete textbook assignment(s)
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Complete activities assigned for TestOut-LabSim
Participate in theory lesson and respond to questions
Participate in group activities according to specific content assignment
Take notes during theory lesson and keep a notebook
Complete Study Guide according to instructions

Skill:

Complete laboratory activity and associated worksheet assignment
Complete activities assigned for TestOut-LabSim
Complete tutorial software assignments
Install and configure a hub, switch, and router
Install, configure, and secure a wireless network

Remediation:

Make corrections to graded work
Re-teach major concepts
Review with teacher assistance
Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Study groups
Review games
Reading comprehension packets
Placing events in a time line
Create a chart
Retest or alternative assessment
Technology integration
Study guides
Computer assisted instruction
Checklists

Enrichment:

Research an approved topic
Do live work
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Conduct a safety review of the laboratory area and classroom
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Special Adaptations:

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Time Cards
Writing Activities
Video/DVD Worksheets
Rubrics
Check Lists
Role-play Activities
Debates
Oral Presentation
Group Projects
Research Papers
Current Events
Any content related assessment
Portfolio

Resources/Equipment:

MSDS binder
Fire extinguisher
Internet access
Whiteboard
LCD Projector
Personal Computer
Cisco Router
Cisco Firewall
Switch
Hub
Ribcage
Toolkit
Antistatic Wriststrap
Multimeter
Cable Tester
Cable Termination Kit
Network Analyzer
Scanner
Hewlett Packard Server
Laptop
Power Supply Tester
Power On Self-Test (POST) Card

Laser Printer
Dot Matrix Printer
Inkjet Printer
Digital Camera
Webcam
Uninterruptible Power Supply (UPS)
Microsoft Disk Operating System (DOS)
Microsoft Windows XP, Vista, 7 Operating Systems
Linux/Unix Operating Systems
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Monroe Career & Technical Institute
Course: Computer Networking and Security

Unit Name: PA800 - NETWORK MANAGEMENT
Unit Number: PA800

Dates: Spring 2016 **Hours:** 40.00

Last Edited By: Computer Networking & Security (05-11-2016)

Unit Description/Objectives:

Student will know and be able to contrast the different layers of the OSI and TCP/IP models and to perform tasks related to network management.

Tasks:

PA801 - Explain, compare and contrast the layers of the TCP/IP and OSI models.

PA802 - Identify types of configuration management documentation such as, wiring schematics, physical and logical network diagrams, baselines, policies, procedures and configurations, regulations.

PA803 - Given a scenario, evaluate the network based on configuration management documentation; such as: wiring schematics; physical and logical network diagrams; baselines; policies, procedures, and configurations to network devices and infrastructure; wiring schematics; physical and logical network diagrams; and, configurations and job logs as needed.

PA804 - Conduct network monitoring to identify performance and connectivity issues such as, packet sniffers, connectivity software, load testing, throughput testers, system logs, history logs, event logs.

PA805 - Explain different methods and rationales for network performance optimization.

Standards / Assessment Anchors

Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

KEY IDEAS/DETAILS GRADES 9-10-11-12
Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.

Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.

Standard CC.3.5.9-10.C / Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.

CRAFT & STRUCTURE GRADES 9-10-11-12
Standard CC.3.5.9-10. D / Standard CC.3.5.11-12.D Determine the meaning of symbols, key terms, and other domain specific words.

Standard CC.3.5.9-10.E / Standard CC.3.5.11-12.E Analyze the structure of the relationships among concepts in a text, etc.

Standard CC.3.5.9-10.F / Standard CC.3.5.11-12.F Analyze the author's purpose in providing an explanation, describing a procedure...and Analyze the structure of the relationships among concepts in a text.

INTEGRATE KNOWLEDGE & IDEAS GRADES 9-10
Standard CC.3.5.9-10.G Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).

Standard CC.3.5.9-10. H Assess the reasoning in a text to support the author's claim for solving a technical problem.

Standard CC.3.5.9-10. I Compare and contrast findings presented in a text to those from other sources, etc.

INTEGRATE KNOWLEDGE & IDEAS GRADES 11-12
Standard CC.3.5.11-12. G Integrate and evaluate multiple sources of information presented in diverse formats...to solve a problem.

Standard CC.3.5.11-12. H Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible.

Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.

RANGE OF READING GRADES 9-10-11-12
Standard CC.3.5.9-10.J / Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11- 12, read and comprehend technical texts independently and proficiently.

Focus Anchor/Standard #2:

- Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6

Supporting Anchor/Standards:

TEXT TYPES AND PURPOSE GRADES 9-10-11-12
Standard CC.3.6.9-10.A Standard CC.3.6.11-12.A Write arguments focused on discipline specific content.

Standard CC.3.6.9-10.B Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc.

PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10-11-12
Standard CC.3.6.9-10.C Standard CC.3.6.11-12 C Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D Standard CC.3.6.11-12.D Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.9-10.E Standard CC.3.6.11-12.E. Use technology, including the internet, to produce, publish, and update individual or shared writing products.

RESEARCH GRADES 9-10-11-12
Standard CC.3.6.9-10.F Standard CC.3.6.11-12.F Conduct short and more sustained research to answer a question or solve a problem.

Standard CC.3.6.9-10.G. Standard CC.3.6.11-12.G Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation.

Standard CC.3.6.9-10.H. Standard CC.3.6.11-12.H. Draw evidence from informational texts to support analysis, reflection, and research.

RANGE OF WRITING GRADES 9-10-11-12
Standard CC.3.5.9-10.I & Standard CC.3.5.11-12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiences...etc.

Connecting Anchor/Standard:

- Pennsylvania Core Standards for Mathematics Standard 2.0

Supporting Anchor/Standards:

NUMBERS AND OPERATIONS
Standard 2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems.

Standard 2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multistep problems.

Standard 2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

Standard 2.1.HS.F.6 Extend the knowledge of arithmetic operations and apply to complex numbers

Instructional Activities:

Knowledge:

Complete textbook assignment(s)
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Participate in theory lesson and respond to questions
Participate in group activities according to specific content assignment
Take notes during theory lesson and keep a notebook
Complete Study Guide according to instructions

Skill:

Complete laboratory activity and associated worksheet assignment
Complete activities assigned for TestOut-LabSim
Complete tutorial software assignments
Create network baselines to monitor performance
Evaluate, monitor, and optimize network performance
Create a network disaster recovery plan
Create, update, and evaluate network documentation

Remediation:

Make corrections to graded work
Re-teach major concepts
Review with teacher assistance

Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Study groups
Review games
Reading comprehension packets
Placing events in a time line
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Retest or alternative assessment
Technology integration
Study guides
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Checklists

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Use proper safety precautions when using /operating hand tools
Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times
Follow proper classroom procedures

Assessment:

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Worksheets
Quizzes
Pre/Post Tests
Essays
Focused Free Write
Summaries
Log/Journal
Time Cards
Writing Activities
Video/DVD Worksheets
Rubrics
Check Lists
Role-play Activities
Debates
Oral Presentation
Group Projects
Research Papers
Current Events
Any content related assessment
Portfolio

Resources/Equipment:

- MSDS binder
- Fire extinguisher
- Internet access
- Whiteboard
- LCD Projector
- Personal Computer
- Cisco Router
- Cisco Firewall
- Switch
- Hub
- Ribcage
- Toolkit
- Antistatic Wriststrap
- Multimeter
- Cable Tester
- Cable Termination Kit
- Network Analyzer
- Scanner
- Hewlett Packard Server
- Laptop
- Power Supply Tester
- Power On Self-Test (POST) Card
- Laser Printer
- Dot Matrix Printer
- Inkjet Printer
- Digital Camera
- Webcam
- Uninterruptible Power Supply (UPS)
- Microsoft Disk Operating System (DOS)
- Microsoft Windows XP, Vista, 7 Op Systems
- Linux/Unix Operating Systems
- Wireless Access Point
- TestOut Software
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Monroe Career & Technical Institute
Course: Computer Networking and Security

Unit Name: PA900 - NETWORK TOOLS AND TROUBLESHOOTING

Unit Number: PA900

Dates: Spring 2016 **Hours:** 50.00

Last Edited By: Computer Networking & Security (05-11-2016)

Unit Description / Objectives:

Student will know and be able appropriately use command line / graphical tools and networking tools. Student will know and be able to apply the network troubleshooting methodology to solve networking issues.

Tasks:

PA901 - Given a scenario, select the appropriate command line/graphical tools and interpret the output to verify functionality such as, Traceroute, Ipconfig, Ifconfig, Ping, Arp ping, Arp, Nslookup, Hostname, Dig, Mtr, Route, Nbtstat, Netstat.

PA902 - Explain the purpose of network scanners such as, packet sniffers, intrusion detection software, Intrusion prevention software, port scanners.

PA903 - Given a scenario, select the appropriate hardware tools such as, cable testers, protocol analyzer, certifiers, TDR, OTDR, multimeter, toner probe, butt set, punch down tool, cable stripper, snips, voltage event recorder, temperature monitor.

PA904 - Given a scenario, implement network troubleshooting methodologies, including information gathering – identify symptoms and problems, Identify the affected areas of the network.

PA905 - Describe and create an action plan and solution identifying potential effects, implement and test the solution, identify the results and effects of the solution, document the solution and the entire process.

PA906 - Given a scenario, troubleshoot common wired and wireless connectivity issues and select an appropriate solution to include physical and logical issues.

Standards / Assessment Anchors

Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

KEY IDEAS/DETAILS GRADES 9-10-11-12
Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.

Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.

Standard CC.3.5.9-10.C / Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.

CRAFT & STRUCTURE GRADES 9-10-11-12
Standard CC.3.5.9-10. D / Standard CC.3.5.11-12.D Determine the meaning of symbols, key terms, and other domain specific words.

Standard CC.3.5.9-10.E / Standard CC.3.5.11-12.E Analyze the structure of the relationships among concepts in a text, etc.

Standard CC.3.5.9-10.F / Standard CC.3.5.11-12.F Analyze the author's purpose in providing an explanation, describing a procedure...and Analyze the structure of the relationships among concepts in a text.

INTEGRATE KNOWLEDGE & IDEAS GRADES 9-10
Standard CC.3.5.9-10.G Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).

Standard CC.3.5.9-10. H Assess the reasoning in a text to support the author's claim for solving a technical problem.

Standard CC.3.5.9-10. I Compare and contrast findings presented in a text to those from other sources, etc.

INTEGRATE KNOWLEDGE & IDEAS GRADES 11-12
Standard CC.3.5.11-12. G Integrate and evaluate multiple sources of information presented in diverse formats...to solve a problem.

Standard CC.3.5.11-12. H Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible.

Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.

RANGE OF READING GRADES 9-10-11-12
Standard CC.3.5.9-10.J / Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11- 12, read and comprehend technical texts independently and proficiently.

Focus Anchor/Standard #2:

- Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6

Supporting Anchor/Standards:

TEXT TYPES AND PURPOSE GRADES 9-10-11-12
Standard CC.3.6.9-10.A Standard CC.3.6.11-12.A Write arguments focused on discipline specific content.

Standard CC.3.6.9-10.B Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc.

PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10-11-12
Standard CC.3.6.9-10.C Standard CC.3.6.11-12 C Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D Standard CC.3.6.11-12.D Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.9-10.E Standard CC.3.6.11-12.E. Use technology, including the internet, to produce, publish, and update individual or shared writing products.

RESEARCH GRADES 9-10-11-12
Standard CC.3.6.9-10.F Standard CC.3.6.11-12.F Conduct short and more sustained research to answer a question or solve a problem.

Standard CC.3.6.9-10.G. Standard CC.3.6.11-12.G Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation.

Standard CC.3.6.9-10.H. Standard CC.3.6.11-12.H. Draw evidence from informational texts to support analysis, reflection, and research.

RANGE OF WRITING GRADES 9-10-11-12
Standard CC.3.5.9-10.I & Standard CC.3.5.11-12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiences...etc.

Connecting Anchor/Standard:

- Pennsylvania Core Standards for Mathematics Standard 2.0

Supporting Anchor/Standards:

NUMBERS AND OPERATIONS
Standard 2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems.

Standard 2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multistep problems.

Standard 2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

Standard 2.1.HS.F.6 Extend the knowledge of arithmetic operations and apply to complex numbers

Instructional Activities:

Knowledge:
Complete textbook assignment(s)
Complete computer assignment(s) as needed
Complete laboratory activity and associated worksheet assignment
Complete activities assigned for TestOut-LabSim
Participate in theory lesson and respond to questions
Participate in group activities according to specific content assignment
Take notes during theory lesson and keep a notebook
Complete Study Guide according to instructions

Skill:
Complete laboratory activity and associated worksheet assignment
Complete activities assigned for TestOut-LabSim
Complete tutorial software assignments
Troubleshoot a network using the appropriate CLI or GUI software tool
Troubleshoot a network using the appropriate hardware tool
Troubleshoot wired network connectivity issues
Troubleshoot wireless network connectivity issues
Demonstrate proper use of the network troubleshooting methodology

Remediation:

Make corrections to graded work
Re-teach major concepts
Review with teacher assistance
Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Study groups
Review games
Reading comprehension packets
Placing events in a time line
Create a chart
Retest or alternative assessment
Technology integration
Study guides
Computer assisted instruction
Checklists

Enrichment:

Research an approved topic
Do live work
Use TestOut for review
Conduct a safety review of the laboratory area and classroom
Live work

Special Adaptations:

- Extended Time (assignments and/or testing)
- Graphic Organizer
- Chunking of Assignments/Material
- Preferential Seating
- Directions/Comprehension Check (frequent checks for understanding)
- Study Guide
- Directions and/or Tests Read Aloud
- Adapted Tests and/or Assignments
- Use of Calculator
- Taking Tests in Alternate Setting (or if requested)
- Verbal/Gestural Redirection (prompts to remain on task)
- Drill and Practice (Repetition of Material)
- No Penalization for Spelling
- Copy of Teacher/Student Notes/Skeleton Notes
- Small Group Instruction
- Provide Visual Model to Accompany Verbal Directions (Written/Oral Directions)
- Use of Daily Planner/Assignment Book (monitor use of)
- Teacher Modeling
- Use of Computer (Access to)
- Wait Time
- Access to School Counselor
- Use of Highlighter/Highlighted Text
- Provide Frequent Feedback
- Variety of Assessment Methods
- Use of Assistive Device (i.e. notepad, laptop, etc.)
- Highly Structured Classroom
- Syllabus for Major Projects
- Grading Rubric
- Communication Regarding Behavior & Consequences (PBS)
- Clear Language for Directions
- Use of Multisensory Approach

- Provide Opportunities to Retest
- Frequent Review Sessions
- Use a variety of Modalities when Introducing Skills/Concepts
- Books on Tape or CD
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- Provide Editing Assistance
- Copies of Text for Home
- De-Escalation Opportunities
- Cue for Oral Response
- Text to Speech (other than for NOCTI)
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- Encourage Student to Check Work Before Turning In
- Opportunities for Repeated Practice of MATH Skills
- Provide repetition During Initial Instruction
- Provide Verbal and Written Directions
- All Vocabulary to be Defined Before Testing
- Testing - Allow Dictation of Lengthy Answers
- Monitor Speed/Accuracy in which Student Completes Assignment
- Access to Closed Captioning as Available (upon request)
- Encouragement to Participate in Positive Leadership Roles
- Student Self-Evaluation for Behavior
- Exempt from reading Aloud in Front of Peers

Safety:

Student must:
Use computer equipment in an ergonomic fashion
Handle material in a safe and work like manner
Use protective clothing and equipment
Use hand tools in a safe manner
Use adequate ventilation when working in enclosed area
Follow manufacturer's directions when using any product, tool, equipment, etc.
Use proper safety precautions when using /operating hand tools
Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times
Follow proper classroom procedures

Assessment:

TestOut Test
Worksheets
Quizzes
Pre/Post Tests
Essays
Focused Free Write
Summaries
Log/Journal
Time Cards
Writing Activities
Video/DVD Worksheets
Rubrics
Check Lists
Role-play Activities
Debates
Oral Presentation
Group Projects
Research Papers
Current Events
Any content related assessment
Portfolio

Resources/Equipment:

SDS binder
Fire extinguisher
Internet access
Whiteboard
LCD Projector
Personal Computer
Cisco Router
Cisco Firewall
Switch
Hub
Ribcage
Toolkit
Antistatic Wriststrap
Multimeter
Cable Tester
Cable Termination Kit
Network Analyzer
Scanner
Hewlett Packard Server
Laptop
Power Supply Tester
Power On Self-Test (POST) Card
Laser Printer
Dot Matrix Printer
Inkjet Printer
Digital Camera
Webcam
Uninterruptible Power Supply (UPS)
Microsoft Disk Operating System (DOS)
Microsoft Windows XP, Vista, 7 Op Systems
Linux/Unix Operating Systems
Wireless Access Point
TestOut Software
Microsoft Office
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Cisco Networking Academy. (2014). Connecting Networks: CCNA Exploration Companion Guide. Indianapolis, IN: Cisco Press

Cisco Academy Labs

CTECH Copper & Fiber Program

Hyperlinks:

www.schoology.com

www.netacad.com

www.testout.com

www.professormesser.com

Monroe Career & Technical Institute
Course: Computer Networking and Security

Unit Name: PA1000 – SECURITY FUNDAMENTALS

Unit Number: PA1000

Dates: Spring 2016 **Hours:** 60.00

Last Edited By: Computer Networking & Security (05-11-2016)

Unit Description/Objectives:

Student will know and be able to understand security fundamentals related to network security devices, security features, access methods, and user authentication. Student will know and be able to identify security threats and demonstrate basic mitigation techniques.

Tasks:

PA1001 - Explain, compare, and contrast the function of hardware and software security devices such as, network based firewall, host based firewall, DMZ, IDS, IPS, VPN concentrator.

PA1002 - Explain common features of a firewall such as, application layer vs. network layer, stateful vs. stateless, scanning services, content filtering, signature identification, zones.

PA1003 - Explain the methods of network access security such as, ACL: MAC filtering, IP filtering tunneling and encryption: SSL VPN, VPN, L2TP, PPTP and related others.

PA1004 - Explain methods of user authentication such as, PKI, Kerberos, AAA: RADIUS, TACACS+, network access control: 802.1x, CHAP, MS-CHAP, EAP.

PA1005 - Explain issues that affect device security such as, physical security, restricting local and remote access, secure methods vs. unsecure methods: SSH, HTTPS, SNMPv3, SFTP, SCP; TELNET, HTTP, FTP, RSH, RCP, SNMPv1/2.

PA1006 - Identify common security threats and mitigation techniques.

PA1007 - Identify security features including BIOS security, password management, locking workstations, and biometrics.

Standards / Assessment Anchors

Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

KEY IDEAS/DETAILS GRADES 9-10-11-12
Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.

Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.

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Standard CC.3.5.9-10. D / Standard CC.3.5.11-12.D Determine the meaning of symbols, key terms, and other domain specific words.

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INTEGRATE KNOWLEDGE & IDEAS GRADES 9-10
Standard CC.3.5.9-10.G Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).

Standard CC.3.5.9-10. H Assess the reasoning in a text to support the author's claim for solving a technical problem.

Standard CC.3.5.9-10. I Compare and contrast findings presented in a text to those from other sources, etc.

INTEGRATE KNOWLEDGE & IDEAS GRADES 11-12
Standard CC.3.5.11-12. G Integrate and evaluate multiple sources of information presented in diverse formats...to solve a problem.

Standard CC.3.5.11-12. H Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible.

Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.

RANGE OF READING GRADES 9-10-11-12
Standard CC.3.5.9-10.J / Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11- 12, read and comprehend technical texts independently and proficiently.

Focus Anchor/Standard #2:

- Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6

Supporting Anchor/Standards:

TEXT TYPES AND PURPOSE GRADES 9-10-11-12
Standard CC.3.6.9-10.A Standard CC.3.6.11-12.A Write arguments focused on discipline specific content.

Standard CC.3.6.9-10.B Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc.

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Standard CC.3.6.9-10.C Standard CC.3.6.11-12 C Produce clear and coherent writing...appropriate to task, purpose, and audience.

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Supporting Anchor/Standards:

NUMBERS AND OPERATIONS
Standard 2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems.

Standard 2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multistep problems.

Standard 2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

Standard 2.1.HS.F.6 Extend the knowledge of arithmetic operations and apply to complex numbers

Instructional Activities:

Knowledge:

Complete textbook assignment(s)
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Complete laboratory activity and associated worksheet assignment
Complete activities assigned for TestOut-LabSim
Participate in theory lesson and respond to questions
Participate in group activities according to specific content assignment
Take notes during theory lesson and keep a notebook
Complete Study Guide according to instructions

Skill:

Complete laboratory activity and associated worksheet assignment
Complete activities assigned for TestOut-LabSim
Complete tutorial software assignments
Secure a personal computer
Secure a computer network
Identify and mitigate common security threats

Remediation:

Make corrections to graded work
Re-teach major concepts
Review with teacher assistance
Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Study groups
Review games
Reading comprehension packets
Placing events in a time line
Create a chart
Retest or alternative assessment
Technology integration
Study guides
Computer assisted instruction
Checklists

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Research an approved topic
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Conduct a safety review of the laboratory area and classroom
Live work

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- Preferential Seating
- Directions/Comprehension Check (frequent checks for understanding)
- Study Guide
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- Adapted Tests and/or Assignments
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- Verbal/Gestural Redirection (prompts to remain on task)
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- No Penalization for Spelling
- Copy of Teacher/Student Notes/Skeleton Notes
- Small Group Instruction
- Provide Visual Model to Accompany Verbal Directions (Written/Oral Directions)
- Use of Daily Planner/Assignment Book (monitor use of)
- Teacher Modeling
- Use of Computer (Access to)
- Wait Time
- Access to School Counselor
- Use of Highlighter/Highlighted Text
- Provide Frequent Feedback
- Variety of Assessment Methods
- Use of Assistive Device (i.e. notepad, laptop, etc.)
- Highly Structured Classroom
- Syllabus for Major Projects
- Grading Rubric
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- Allow Oral Answers for Testing
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Student must:
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Handle material in a safe and work like manner
Use protective clothing and equipment
Use hand tools in a safe manner
Use adequate ventilation when working in enclosed area
Follow manufacturer's directions when using any product, tool, equipment, etc.
Use proper safety precautions when using /operating hand tools
Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times
Follow proper classroom procedures

Assessment:

TestOut Test
Worksheets
Quizzes
Pre/Post Tests
Essays
Focused Free Write
Summaries
Log/Journal
Time Cards
Writing Activities
Video/DVD Worksheets
Rubrics
Check Lists
Role-play Activities
Debates
Oral Presentation
Group Projects
Research Papers
Current Events
Any content related assessment
Portfolio

Resources/Equipment:

- MSDS binder
- Fire extinguisher
- Internet access
- Whiteboard
- LCD Projector
- Personal Computer
- Cisco Router
- Cisco Firewall
- Switch
- Hub
- Ribcage
- Toolkit
- Antistatic Wriststrap
- Multimeter
- Cable Tester
- Cable Termination Kit
- Network Analyzer
- Scanner
- Hewlett Packard Server
- Laptop
- Power Supply Tester
- Power On Self-Test (POST) Card
- Laser Printer
- Dot Matrix Printer
- Inkjet Printer
- Digital Camera
- Webcam
- Uninterruptible Power Supply (UPS)
- Microsoft Disk Operating System (DOS)
- Microsoft Windows XP, Vista, 7 Op Systems
- Linux/Unix Operating Systems
- Wireless Access Point
- TestOut Software
- Microsoft Office
- ALICE

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Hyperlinks:

www.schoology.com

www.netacad.com

www.testout.com

www.professormesser.com

Monroe Career & Technical Institute
Course: Computer Networking and Security

Unit Name: L1100 - INTRODUCTION TO NETWORKS AND NETWORK BASICS

Unit Number: L1100

Dates: Spring 2016 **Hours:** 120.00

Last Edited By: Computer Networking & Security (05-11-2016)

Description / Objectives:

The Cisco Academy Level 1 Curriculum: Student will know and understand the OSI Model and how it applies to networking. The student will understand and be able to setup an IP addressing scheme and subnet a network.

Tasks:

L1101 - Understand and describe the devices and services used to support communications in data networks and the Internet

L1102 - Understand and describe the role of protocol layers in data networks

L1103 - Understand and describe the importance of addressing and naming schemes at various layers of data networks in IPv4 and IPv6 environments

L1104 - Design, calculate, and apply subnet masks and addresses to fulfill given requirements in IPv4 and IPv6 networks

L1105 - Explain fundamental Ethernet concepts such as media, services, and operations

L1106 - Build a simple Ethernet network using routers and switches

L1107 - Use Cisco command-line interface (CLI) commands to perform basic router and switch configurations

L1108 - Utilize common network utilities to verify small network operations and analyze data traffic

Standards / Assessment Anchors

Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

KEY IDEAS/DETAILS GRADES 9-10-11-12
Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.

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Skill:

Complete laboratory activity and associated worksheet assignment
Complete activities assigned for TestOut-LabSim
Complete tutorial software assignments
Install and configure a hub, switch, and router
Install, configure, and secure a wireless network

Remediation:

Make corrections to graded work
Re-teach major concepts
Review with teacher assistance
Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Study groups
Review games
Reading comprehension packets
Placing events in a time line
Create a chart
Retest or alternative assessment
Technology integration
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Computer assisted instruction
Checklists

Enrichment:

Research an approved topic
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Conduct a safety review of the laboratory area and classroom
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- Chunking of Assignments/Material
- Preferential Seating
- Directions/Comprehension Check (frequent checks for understanding)
- Study Guide
- Directions and/or Tests Read Aloud
- Adapted Tests and/or Assignments
- Use of Calculator
- Taking Tests in Alternate Setting (or if requested)
- Verbal/Gestural Redirection (prompts to remain on task)
- Drill and Practice (Repetition of Material)
- No Penalization for Spelling
- Copy of Teacher/Student Notes/Skeleton Notes
- Small Group Instruction
- Provide Visual Model to Accompany Verbal Directions (Written/Oral Directions)
- Use of Daily Planner/Assignment Book (monitor use of)
- Teacher Modeling
- Use of Computer (Access to)
- Wait Time
- Access to School Counselor
- Use of Highlighter/Highlighted Text
- Provide Frequent Feedback
- Variety of Assessment Methods
- Use of Assistive Device (i.e. notepad, laptop, etc.)
- Highly Structured Classroom
- Syllabus for Major Projects
- Grading Rubric
- Communication Regarding Behavior & Consequences (PBS)
- Clear Language for Directions
- Use of Multisensory Approach

- Provide Opportunities to Retest
- Frequent Review Sessions
- Use a variety of Modalities when Introducing Skills/Concepts
- Books on Tape or CD
- Allow Oral Answers for Testing
- Provide Editing Assistance
- Copies of Text for Home
- De-Escalation Opportunities
- Cue for Oral Response
- Text to Speech (other than for NOCTI)
- Daily Classwork Check
- Encourage Student to Check Work Before Turning In
- Opportunities for Repeated Practice of MATH Skills
- Provide repetition During Initial Instruction
- Provide Verbal and Written Directions
- All Vocabulary to be Defined Before Testing
- Testing - Allow Dictation of Lengthy Answers
- Monitor Speed/Accuracy in which Student Completes Assignment
- Access to Closed Captioning as Available (upon request)
- Encouragement to Participate in Positive Leadership Roles
- Student Self-Evaluation for Behavior
- Exempt from reading Aloud in Front of Peers

Safety:

Student must:
Use computer equipment in an ergonomic fashion
Handle material in a safe and work like manner
Use protective clothing and equipment
Use hand tools in a safe manner
Use adequate ventilation when working in enclosed area
Follow manufacturer's directions when using any product, tool, equipment, etc.
Use proper safety precautions when using /operating hand tools
Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times
Follow proper classroom procedures

Assessment:

TestOut Test
Worksheets
Quizzes
Pre/Post Tests
Essays
Focused Free Write
Summaries
Log/Journal
Time Cards
Writing Activities
Video/DVD Worksheets
Rubrics
Check Lists
Role-play Activities
Debates
Oral Presentation
Group Projects
Research Papers
Current Events
Any content related assessment
Portfolio

Resources/Equipment:

- MSDS binder
- Fire extinguisher
- Internet access
- Whiteboard
- LCD Projector
- Personal Computer
- Cisco Router
- Cisco Firewall
- Switch
- Hub
- Ribcage
- Toolkit
- Antistatic Wriststrap
- Multimeter
- Cable Tester
- Cable Termination Kit
- Network Analyzer
- Scanner
- Hewlett Packard Server
- Laptop
- Power Supply Tester
- Power On Self-Test (POST) Card
- Laser Printer
- Dot Matrix Printer
- Inkjet Printer
- Digital Camera
- Webcam
- Uninterruptible Power Supply (UPS)
- Microsoft Disk Operating System (DOS)
- Microsoft Windows XP, Vista, 7 Operating Systems
- Linux/Unix Operating Systems
- Wireless Access Point
- TestOut Software
- Microsoft Office
- ALICE

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Cisco Academy Labs

CTECH Copper & Fiber Program

Hyperlinks:

www.schoology.com

www.netacad.com

www.testout.com

www.professormesser.com

Monroe Career & Technical Institute
Course: Computer Networking and Security

Unit Name: L1200 - ROUTING PROTOCOLS
Unit Number: L1200

Dates: Spring 2016 **Hours:** 120.00

Last Edited By: Computer Networking & Security (05-11-2016)

Unit Description / Objectives:

The Cisco Academy Level 2 Curriculum: Student will know and be able to configure and troubleshoot Cisco routers using static routes and routing protocols.

Tasks:

L1201 - Understand and describe the purpose, nature, and operations of a router, routing tables, and the process route lookup

L1202 - Configure and verify static routing and default routing

L1203 - Understand and describe dynamic routing protocols, distance vector routing protocols, and link-state routing protocols

L1204 - Configure and troubleshoot basic operations of routers in a small routed network for IPv4 and IPv6 including Routing Information Protocol (RIPv1 and RIPv2), Open Shortest Path First (OSPF) protocol (single-area OSPF and multi-area OSPF), and Enhanced Interior Gateway Routing Protocol (EIGRP).

L1205 - Configure and troubleshoot advanced operations of routers and implement RIP, OSPF, and EIGRP for IPv4 and IPv6routing protocols

L1206 - Understand and describe the purpose and types of access control lists (ACLs)

L1207 - Configure, monitor, and troubleshoot ACLs for IPv4 and IPv6

Standards / Assessment Anchors

Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

KEY IDEAS/DETAILS GRADES 9-10-11-12
Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.

Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.

Standard CC.3.5.9-10.C / Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.

CRAFT & STRUCTURE GRADES 9-10-11-12
Standard CC.3.5.9-10. D / Standard CC.3.5.11-12.D Determine the meaning of symbols, key terms, and other domain specific words.

Standard CC.3.5.9-10.E / Standard CC.3.5.11-12.E Analyze the structure of the relationships among concepts in a text, etc.

Standard CC.3.5.9-10.F / Standard CC.3.5.11-12.F Analyze the author's purpose in providing an explanation, describing a procedure...and Analyze the structure of the relationships among concepts in a text.

INTEGRATE KNOWLEDGE & IDEAS GRADES 9-10
Standard CC.3.5.9-10.G Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).

Standard CC.3.5.9-10. H Assess the reasoning in a text to support the author's claim for solving a technical problem.

Standard CC.3.5.9-10. I Compare and contrast findings presented in a text to those from other sources, etc.

INTEGRATE KNOWLEDGE & IDEAS GRADES 11-12
Standard CC.3.5.11-12. G Integrate and evaluate multiple sources of information presented in diverse formats...to solve a problem.

Standard CC.3.5.11-12. H Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible.

Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.

RANGE OF READING GRADES 9-10-11-12
Standard CC.3.5.9-10.J / Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11- 12, read and comprehend technical texts independently and proficiently.

Focus Anchor/Standard #2:

- Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6

Supporting Anchor/Standards:

TEXT TYPES AND PURPOSE GRADES 9-10-11-12
Standard CC.3.6.9-10.A Standard CC.3.6.11-12.A Write arguments focused on discipline specific content.

Standard CC.3.6.9-10.B Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc.

PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10-11-12
Standard CC.3.6.9-10.C Standard CC.3.6.11-12 C Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D Standard CC.3.6.11-12.D Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.9-10.E Standard CC.3.6.11-12.E. Use technology, including the internet, to produce, publish, and update individual or shared writing products.

RESEARCH GRADES 9-10-11-12
Standard CC.3.6.9-10.F Standard CC.3.6.11-12.F Conduct short and more sustained research to answer a question or solve a problem.

Standard CC.3.6.9-10.G. Standard CC.3.6.11-12.G Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation.

Standard CC.3.6.9-10.H. Standard CC.3.6.11-12.H. Draw evidence from informational texts to support analysis, reflection, and research.

RANGE OF WRITING GRADES 9-10-11-12
Standard CC.3.5.9-10.I & Standard CC.3.5.11-12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiences...etc.

Connecting Anchor/Standard:

- Pennsylvania Core Standards for Mathematics Standard 2.0

Supporting Anchor/Standards:

NUMBERS AND OPERATIONS
Standard 2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems.

Standard 2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multistep problems.

Standard 2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

Standard 2.1.HS.F.6 Extend the knowledge of arithmetic operations and apply to complex numbers.

Instructional Activities:

Knowledge:

Complete textbook assignment(s)
Complete computer assignment(s) as needed
Complete laboratory activity and associated worksheet assignment
Complete activities assigned for TestOut-LabSim
Participate in theory lesson and respond to questions
Participate in group activities according to specific content assignment
Take notes during theory lesson and keep a notebook
Complete Study Guide according to instructions

Skill:

Complete laboratory activity and associated worksheet assignment
Complete activities assigned for TestOut-LabSim
Complete tutorial software assignments
Install and configure a hub, switch, and router
Install, configure, and secure a wireless network

Remediation:

Make corrections to graded work
Re-teach major concepts
Review with teacher assistance
Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Study groups
Review games
Reading comprehension packets
Placing events in a time line
Create a chart
Retest or alternative assessment
Technology integration
Study guides
Computer assisted instruction
Checklists

Enrichment:

Research an approved topic
Do live work
Use TestOut for review
Conduct a safety review of the laboratory area and classroom
Live work

Special Adaptations:

- Extended Time (assignments and/or testing)
- Graphic Organizer
- Chunking of Assignments/Material
- Preferential Seating
- Directions/Comprehension Check (frequent checks for understanding)
- Study Guide
- Directions and/or Tests Read Aloud
- Adapted Tests and/or Assignments
- Use of Calculator
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- No Penalization for Spelling
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- Syllabus for Major Projects
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- Access to Closed Captioning as Available (upon request)
- Encouragement to Participate in Positive Leadership Roles
- Student Self-Evaluation for Behavior
- Exempt from reading Aloud in Front of Peers

Safety:

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Use hand tools in a safe manner
Use adequate ventilation when working in enclosed area
Follow manufacturer's directions when using any product, tool, equipment, etc.
Use proper safety precautions when using /operating hand tools
Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times
Follow proper classroom procedures

Assessment:

TestOut Test
Worksheets
Quizzes
Pre/Post Tests
Essays
Focused Free Write
Summaries
Log/Journal
Time Cards
Writing Activities
Video/DVD Worksheets
Rubrics
Check Lists
Role-play Activities
Debates
Oral Presentation
Group Projects
Research Papers
Current Events
Any content related assessment
Portfolio

Resources/Equipment:

- MSDS binder
- Fire extinguisher
- Internet access
- Whiteboard
- LCD Projector
- Personal Computer
- Cisco Router
- Cisco Firewall
- Switch
- Hub
- Ribcage
- Toolkit
- Antistatic Wriststrap
- Multimeter
- Cable Tester
- Cable Termination Kit
- Network Analyzer
- Scanner
- Hewlett Packard Server
- Laptop
- Power Supply Tester
- Power On Self-Test (POST) Card
- Laser Printer
- Dot Matrix Printer
- Inkjet Printer
- Digital Camera
- Webcam
- Uninterruptible Power Supply (UPS)
- Microsoft Disk Operating System (DOS)
- Microsoft Windows XP, Vista, 7 Op Systems
- Linux/Unix Operating Systems
- Wireless Access Point
- TestOut Software
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Monroe Career & Technical Institute
Course: Computer Networking and Security

Unit Name: L1300 - SWITCHED NETWORKS
Unit Number: L1300

Dates: Spring 2016 **Hours:** 180.00

Last Edited By: Computer Networking & Security (05-11-2016)

Unit Description/Objectives:

The Cisco Academy Level 3 Curriculum: Student will know and be able to configure and troubleshoot Cisco switches using VLANs. Student will know and be able to configure and secure small wireless networks. Student will understand and be able to configure and troubleshoot DHCP and DNS operations.

Tasks:

L1301 - Understand and describe basic switching concepts and the operation of Cisco switches

L1302 - Understand and describe enhanced switching technologies such as VLANs, VLAN Trunking Protocol (VTP), Rapid Spanning Tree Protocol (RSTP), Per VLAN Spanning Tree Protocol (PVSTP), and 802.1q

L1303 - Configure and troubleshoot basic operations of a small switched network

L1304 - Understand and describe how VLANs create logically separate networks and how routing occurs between them

L1305 - Configure and troubleshoot VLANs, trunking on Cisco switches, inter-VLAN routing, VTP, and RSTP

L1306 - Understand and describe the operations and benefits of Dynamic Host Configuration Protocol (DHCP) and Domain Name System (DNS) for IPv4 and IPv6

L1307 - Configure and troubleshoot DHCP and DNS operations for IPv4 and IPv6

L1308 - Understand and describe the purpose of the components in a small wireless network including Service Set Identification (SSID), Basic Service Set (BSS), and Extended Service Set (ESS).

L1309 - Compare and contrast Wi-Fi Protected Access (WPA) security features and the capabilities of open, Wired Equivalent Privacy (WEP), and WPA1/2 networks

L1310 - Configure and troubleshoot basic operations of a small wireless network

Standards / Assessment Anchors

Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

KEY IDEAS/DETAILS GRADES 9-10-11-12
Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.

Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.

Standard CC.3.5.9-10.C / Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.

CRAFT & STRUCTURE GRADES 9-10-11-12
Standard CC.3.5.9-10. D / Standard CC.3.5.11-12.D Determine the meaning of symbols, key terms, and other domain specific words.

Standard CC.3.5.9-10.E / Standard CC.3.5.11-12.E Analyze the structure of the relationships among concepts in a text, etc.

Standard CC.3.5.9-10.F / Standard CC.3.5.11-12.F Analyze the author's purpose in providing an explanation, describing a procedure...and Analyze the structure of the relationships among concepts in a text.

INTEGRATE KNOWLEDGE & IDEAS GRADES 9-10
Standard CC.3.5.9-10.G Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).

Standard CC.3.5.9-10. H Assess the reasoning in a text to support the author's claim for solving a technical problem.

Standard CC.3.5.9-10. I Compare and contrast findings presented in a text to those from other sources, etc.

INTEGRATE KNOWLEDGE & IDEAS GRADES 11-12
Standard CC.3.5.11-12. G Integrate and evaluate multiple sources of information presented in diverse formats...to solve a problem.

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Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.

RANGE OF READING GRADES 9-10-11-12
Standard CC.3.5.9-10.J / Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11- 12, read and comprehend technical texts independently and proficiently.

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Standard CC.3.6.9-10.E Standard CC.3.6.11-12.E. Use technology, including the internet, to produce, publish, and update individual or shared writing products.

RESEARCH GRADES 9-10-11-12
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Standard 2.1.HS.F.6 Extend the knowledge of arithmetic operations and apply to complex numbers

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Install, configure, and secure a wireless network

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Make corrections to graded work
Re-teach major concepts
Review with teacher assistance
Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Study groups
Review games
Reading comprehension packets
Placing events in a time line
Create a chart
Retest or alternative assessment
Technology integration
Study guides
Computer assisted instruction
Checklists

Enrichment:

Research an approved topic
Do live work
Use TestOut for review
Conduct a safety review of the laboratory area and classroom
Live work

Special Adaptations:

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- Graphic Organizer
- Chunking of Assignments/Material
- Preferential Seating
- Directions/Comprehension Check (frequent checks for understanding)
- Study Guide
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- Small Group Instruction
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Safety:

Student must:
Use computer equipment in an ergonomic fashion
Handle material in a safe and work like manner
Use protective clothing and equipment
Use hand tools in a safe manner
Use adequate ventilation when working in enclosed area
Follow manufacturer's directions when using any product, tool, equipment, etc.
Use proper safety precautions when using /operating hand tools
Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times
Follow proper classroom procedures

Assessment:

TestOut Test
Worksheets
Quizzes
Pre/Post Tests
Essays
Focused Free Write
Summaries
Log/Journal
Time Cards
Writing Activities
Video/DVD Worksheets
Rubrics
Check Lists
Role-play Activities
Debates
Oral Presentation
Group Projects
Research Papers
Current Events
Any content related assessment
Portfolio

Resources/Equipment:

MSDS binder
Fire extinguisher
Internet access
Whiteboard
LCD Projector
Personal Computer
Cisco Router
Cisco Firewall
Switch
Hub
Ribcage
Toolkit
Antistatic Wriststrap
Multimeter
Cable Tester
Cable Termination Kit
Network Analyzer
Scanner
Hewlett Packard Server
Laptop
Power Supply Tester
Power On Self-Test (POST) Card
Laser Printer
Dot Matrix Printer
Inkjet Printer
Digital Camera
Webcam
Uninterruptible Power Supply (UPS)
Microsoft Disk Operating System (DOS)
Microsoft Windows XP, Vista, 7 Op Systems
Linux/Unix Operating Systems
Wireless Access Point
TestOut Software
Microsoft Office
ALICE

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Monroe Career & Technical Institute
Course: Computer Networking and Security

Unit Name: L1400 - CONNECTING NETWORKS

Unit Number: L1400

Dates: Spring 2016 **Hours:** 180.00

Last Edited By: Computer Networking & Security (05-11-2016)

Description / Objectives:

The Cisco Academy Level 4 Curriculum: Student will know and be able to configure, troubleshoot, and secure WAN connections.

Tasks:

L1401 - Understand and describe different WAN technologies and their benefits

L1402 - Understand and describe the operations and benefits of virtual private networks (VPNs) and tunneling

L1403 - Configure and troubleshoot serial connections

L1404 - Configure and troubleshoot broadband connections

L1405 - Configure and troubleshoot IPSec tunneling operations

L1406 - Monitor and troubleshoot network operations using syslog, SNMP, and NetFlow

L1407 - Design network architectures including Borderless networks, Data centers and virtualization, and Collaboration technology and solutions.

Standards / Assessment Anchors

Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

KEY IDEAS/DETAILS GRADES 9-10-11-12
Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.

Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.

Standard CC.3.5.9-10.C / Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.

CRAFT & STRUCTURE GRADES 9-10-11-12
Standard CC.3.5.9-10. D / Standard CC.3.5.11-12.D Determine the meaning of symbols, key terms, and other domain specific words.

Standard CC.3.5.9-10.E / Standard CC.3.5.11-12.E Analyze the structure of the relationships among concepts in a text, etc.

Standard CC.3.5.9-10.F / Standard CC.3.5.11-12.F Analyze the author's purpose in providing an explanation, describing a procedure...and Analyze the structure of the relationships among concepts in a text.

INTEGRATE KNOWLEDGE & IDEAS GRADES 9-10
Standard CC.3.5.9-10.G Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).

Standard CC.3.5.9-10. H Assess the reasoning in a text to support the author's claim for solving a technical problem.

Standard CC.3.5.9-10. I Compare and contrast findings presented in a text to those from other sources, etc.

INTEGRATE KNOWLEDGE & IDEAS GRADES 11-12
Standard CC.3.5.11-12. G Integrate and evaluate multiple sources of information presented in diverse formats...to solve a problem.

Standard CC.3.5.11-12. H Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible.

Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.

RANGE OF READING GRADES 9-10-11-12
Standard CC.3.5.9-10.J / Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11- 12, read and comprehend technical texts independently and proficiently.

Focus Anchor/Standard #2:

- Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6

Supporting Anchor/Standards:

TEXT TYPES AND PURPOSE GRADES 9-10-11-12
Standard CC.3.6.9-10.A Standard CC.3.6.11-12.A Write arguments focused on discipline specific content.

Standard CC.3.6.9-10.B Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc.

PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10-11-12
Standard CC.3.6.9-10.C Standard CC.3.6.11-12 C Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D Standard CC.3.6.11-12.D Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.9-10.E Standard CC.3.6.11-12.E. Use technology, including the internet, to produce, publish, and update individual or shared writing products.

RESEARCH GRADES 9-10-11-12
Standard CC.3.6.9-10.F Standard CC.3.6.11-12.F Conduct short and more sustained research to answer a question or solve a problem.

Standard CC.3.6.9-10.G. Standard CC.3.6.11-12.G Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation.

Standard CC.3.6.9-10.H. Standard CC.3.6.11-12.H. Draw evidence from informational texts to support analysis, reflection, and research.

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Connecting Anchor/Standard:

- Pennsylvania Core Standards for Mathematics Standard 2.0

Supporting Anchor/Standards:

NUMBERS AND OPERATIONS
Standard 2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems.

Standard 2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multistep problems.

Standard 2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

Standard 2.1.HS.F.6 Extend the knowledge of arithmetic operations and apply to complex numbers

Instructional Activities:

Knowledge:
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Install and configure a hub, switch, and router
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Remediation:

Make corrections to graded work
Re-teach major concepts
Review with teacher assistance
Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Study groups
Review games
Reading comprehension packets
Placing events in a time line
Create a chart
Retest or alternative assessment
Technology integration
Study guides
Computer assisted instruction
Checklists

Enrichment:

Research an approved topic
Do live work
Use TestOut for review
Conduct a safety review of the laboratory area and classroom
Live work

Special Adaptations:

- Extended Time (assignments and/or testing)
- Graphic Organizer
- Chunking of Assignments/Material
- Preferential Seating
- Directions/Comprehension Check (frequent checks for understanding)
- Study Guide
- Directions and/or Tests Read Aloud
- Adapted Tests and/or Assignments
- Use of Calculator
- Taking Tests in Alternate Setting (or if requested)
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- Drill and Practice (Repetition of Material)
- No Penalization for Spelling
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- Use of Daily Planner/Assignment Book (monitor use of)
- Teacher Modeling
- Use of Computer (Access to)
- Wait Time
- Access to School Counselor
- Use of Highlighter/Highlighted Text
- Provide Frequent Feedback
- Variety of Assessment Methods
- Use of Assistive Device (i.e. notepad, laptop, etc.)
- Highly Structured Classroom
- Syllabus for Major Projects
- Grading Rubric
- Communication Regarding Behavior & Consequences (PBS)
- Clear Language for Directions
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- Provide Opportunities to Retest
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- Student Self-Evaluation for Behavior
- Exempt from reading Aloud in Front of Peers

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Use hand tools in a safe manner
Use adequate ventilation when working in enclosed area
Follow manufacturer's directions when using any product, tool, equipment, etc.
Use proper safety precautions when using /operating hand tools
Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times
Follow proper classroom procedures

Assessment:

TestOut Test
Worksheets
Quizzes
Pre/Post Tests
Essays
Focused Free Write
Summaries
Log/Journal
Time Cards
Writing Activities
Video/DVD Worksheets
Rubrics
Check Lists
Role-play Activities
Debates
Oral Presentation
Group Projects
Research Papers
Current Events
Any content related assessment
Portfolio

Resources/Equipment:

SDS binder
Fire extinguisher
Internet access
Whiteboard
LCD Projector
Personal Computer
Cisco Router
Cisco Firewall
Switch
Hub
Ribcage
Toolkit
Antistatic Wriststrap
Multimeter
Cable Tester
Cable Termination Kit
Network Analyzer
Scanner
Hewlett Packard Server
Laptop
Power Supply Tester
Power On Self-Test (POST) Card
Laser Printer
Dot Matrix Printer
Inkjet Printer
Digital Camera
Webcam
Uninterruptible Power Supply (UPS)
Microsoft Disk Operating System (DOS)
Microsoft Windows XP, Vista, 7 Op Systems
Linux/Unix Operating Systems
Wireless Access Point
TestOut Software
Microsoft Office
ALICE

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Cisco Academy Labs

CTECH Copper & Fiber Program

Hyperlinks:

www.schoology.com

www.netacad.com

www.testout.com

www.professormesser.com

Monroe Career & Technical Institute
Course: Computer Networking and Security

Unit Name: L1500 - COMPLIANCE AND OPERATIONAL SECURITY

Unit Number: L1500

Dates: Spring 2016 **Hours:** 20.00

Last Edited By: Computer Networking & Security (05-11-2016)

Description / Objectives:

Student will know and understand the concepts of risk, confidentiality, integrity, availability, and environmental controls. Student will know and be able to execute risk mitigation strategies, incidence response procedures, and disaster recovery procedures.

Tasks:

L1501 - Explain risk related concepts

L1502 - Carry out appropriate risk mitigation strategies

L1503 - Execute appropriate incident response procedures

L1504 - Explain the importance of security related awareness and training

L1505 - Compare and contrast aspects of business continuity

L1506 - Explain the impact and proper use of environmental controls

L1507 - Execute disaster recovery plans and procedures

L1508 - Exemplify the concepts of confidentiality, integrity and availability (CIA)

Standards / Assessment Anchors

Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

KEY IDEAS/DETAILS GRADES 9-10-11-12
Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.

Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.

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INTEGRATE KNOWLEDGE & IDEAS GRADES 11-12
Standard CC.3.5.11-12. G Integrate and evaluate multiple sources of information presented in diverse formats...to solve a problem.

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Focus Anchor/Standard #2:

- Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6

Supporting Anchor/Standards:

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Retest or alternative assessment
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Checklists

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- Copy of Teacher/Student Notes/Skeleton Notes

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Use hand tools in a safe manner
Use adequate ventilation when working in enclosed area
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Use proper safety precautions when using /operating hand tools
Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times
Follow proper classroom procedures

Assessment:

TestOut Test	Log/Journal	Debates
Worksheets	Time Cards	Oral Presentation
Quizzes	Writing Activities	Group Projects
Pre/Post Tests	Video/DVD Worksheets	Research Papers
Essays	Rubrics	Current Events
Focused Free Write	Check Lists	Any content related assessment
Summaries	Role-play Activities	Portfolio

Resources/Equipment:

- MSDS binder
- Fire extinguisher
- Internet access
- Whiteboard
- LCD Projector
- Personal Computer
- Cisco Router
- Cisco Firewall
- Switch
- Hub
- Ribcage
- Toolkit
- Antistatic Wriststrap
- Multimeter
- Cable Tester
- Cable Termination Kit
- Network Analyzer
- Scanner
- Hewlett Packard Server
- Laptop
- Power Supply Tester
- Power On Self-Test (POST) Card
- Laser Printer
- Dot Matrix Printer
- Inkjet Printer
- Digital Camera
- Webcam
- Uninterruptible Power Supply (UPS)
- Microsoft Disk Operating System (DOS)
- Microsoft Windows XP, Vista, 7 Operating Systems
- Linux/Unix Operating Systems
- Wireless Access Point
- TestOut Software
- Microsoft Office
- ALICE

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Monroe Career & Technical Institute
Course: Computer Networking and Security

Unit Name: L1600 - THREATS AND VULNERABILITIES

Unit Number: L1600

Dates: Spring 2016 **Hours:** 40.00

Last Edited By: Computer Networking & Security (05-11-2016)

Unit Description / Objectives:

Student will know and be able to analyze different types of malware and computer related attacks. Student will be able to use appropriate tools and techniques to perform vulnerability assessments, discover security threats, and mitigate threats.

Tasks:

L1601 - Analyze and differentiate among types of malware

L1602 - Analyze and differentiate among types of attacks

L1603 - Analyze and differentiate among types of social engineering attacks

L1604 - Analyze and differentiate among types of wireless attacks

L1605 - Analyze and differentiate among types of application attacks

L1606 - Analyze and differentiate among types of mitigation and deterrent techniques

L1607 - Implement assessment tools and techniques to discover security threats and vulnerabilities

L1608 - Within the realm of vulnerability assessments, explain the proper use of penetration testing versus vulnerability scanning.

Standards / Assessment Anchors

Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

KEY IDEAS/DETAILS GRADES 9-10-11-12
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- Use of Multisensory Approach
- Provide Opportunities to Retest
- Frequent Review Sessions
- Use a variety of Modalities when Introducing Skills/Concepts
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- Allow Oral Answers for Testing
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- Copies of Text for Home
- De-Escalation Opportunities
- Cue for Oral Response
- Text to Speech (other than for NOCTI)
- Daily Classwork Check
- Encourage Student to Check Work Before Turning In

- Opportunities for Repeated Practice of MATH Skills
- Provide repetition During Initial Instruction
- Provide Verbal and Written Directions
- All Vocabulary to be Defined Before Testing
- Testing - Allow Dictation of Lengthy Answers
- Monitor Speed/Accuracy in which Student Completes Assignment
- Access to Closed Captioning as Available (upon request)
- Encouragement to Participate in Positive Leadership Roles
- Student Self-Evaluation for Behavior
- Exempt from reading Aloud in Front of Peers

Safety:

Student must:
Use computer equipment in an ergonomic fashion
Handle material in a safe and work like manner
Use protective clothing and equipment
Use hand tools in a safe manner
Use adequate ventilation when working in enclosed area
Follow manufacturer's directions when using any product, tool, equipment, etc.
Use proper safety precautions when using /operating hand tools
Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times
Follow proper classroom procedures

Assessment:

TestOut Test
Worksheets
Quizzes
Pre/Post Tests
Essays
Focused Free Write
Summaries
Log/Journal
Time Cards
Writing Activities
Video/DVD Worksheets
Rubrics
Check Lists
Role-play Activities
Debates
Oral Presentation
Group Projects
Research Papers
Current Events
Any content related assessment
Portfolio

Resources/Equipment:

MSDS binder
Fire extinguisher
Internet access
Whiteboard
LCD Projector
Personal Computer
Cisco Router
Cisco Firewall
Switch
Hub
Ribcage
Toolkit
Antistatic Wriststrap
Multimeter
Cable Tester
Cable Termination Kit
Network Analyzer
Scanner
Hewlett Packard Server
Laptop
Power Supply Tester
Power On Self-Test (POST) Card
Laser Printer
Dot Matrix Printer
Inkjet Printer
Digital Camera
Webcam
Uninterruptible Power Supply (UPS)
Microsoft Disk Operating System (DOS)
Microsoft Windows XP, Vista, 7 Operating Systems
Linux/Unix Operating Systems
Wireless Access Point
TestOut Software
Microsoft Office
ALICE

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Cisco Academy Labs

CTECH Copper & Fiber Program

Hyperlinks:

www.schoology.com

www.netacad.com

www.testout.com

www.professormesser.com

Monroe Career & Technical Institute
Course: Computer Networking and Security

Unit Name: L1700 - APPLICATION, DATA AND HOST SECURITY

Unit Number: L1700

Dates: Spring 2016 **Hours:** 20.00

Last Edited By: Computer Networking & Security (05-11-2016)

Unit Description / Objectives:

Student will know and be able to implement application security. The student will be able to secure a host computer.

Tasks:

L1701 - Explain the importance of application security

L1702 - Carry out appropriate procedures to establish host security

L1703 - Explain the importance of data security

Standards / Assessment Anchors

Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

KEY IDEAS/DETAILS GRADES 9-10-11-12
Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.

Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.

Standard CC.3.5.9-10.C / Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.

CRAFT & STRUCTURE GRADES 9-10-11-12
Standard CC.3.5.9-10. D / Standard CC.3.5.11-12.D Determine the meaning of symbols, key terms, and other domain specific words.

Standard CC.3.5.9-10.E / Standard CC.3.5.11-12.E Analyze the structure of the relationships among concepts in a text, etc.

Standard CC.3.5.9-10.F / Standard CC.3.5.11-12.F Analyze the author's purpose in providing an explanation, describing a procedure...and Analyze the structure of the relationships among concepts in a text.

INTEGRATE KNOWLEDGE & IDEAS GRADES 9-10
Standard CC.3.5.9-10.G Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).

Standard CC.3.5.9-10. H Assess the reasoning in a text to support the author's claim for solving a technical problem.

Standard CC.3.5.9-10. I Compare and contrast findings presented in a text to those from other sources, etc.

INTEGRATE KNOWLEDGE & IDEAS GRADES 11-12
Standard CC.3.5.11-12. G Integrate and evaluate multiple sources of information presented in diverse formats...to solve a problem.

Standard CC.3.5.11-12. H Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible.

Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.

RANGE OF READING GRADES 9-10-11-12
Standard CC.3.5.9-10.J / Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11- 12, read and comprehend technical texts independently and proficiently.

Focus Anchor/Standard #2:

- Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6

Supporting Anchor/Standards:

TEXT TYPES AND PURPOSE GRADES 9-10-11-12
Standard CC.3.6.9-10.A Standard CC.3.6.11-12.A Write arguments focused on discipline specific content.

Standard CC.3.6.9-10.B Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc.

PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10-11-12
Standard CC.3.6.9-10.C Standard CC.3.6.11-12 C Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D Standard CC.3.6.11-12.D Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.9-10.E Standard CC.3.6.11-12.E. Use technology, including the internet, to produce, publish, and update individual or shared writing products.

RESEARCH GRADES 9-10-11-12
Standard CC.3.6.9-10.F Standard CC.3.6.11-12.F Conduct short and more sustained research to answer a question or solve a problem.

Standard CC.3.6.9-10.G. Standard CC.3.6.11-12.G Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation.

Standard CC.3.6.9-10.H. Standard CC.3.6.11-12.H. Draw evidence from informational texts to support analysis, reflection, and research.

RANGE OF WRITING GRADES 9-10-11-12
Standard CC.3.5.9-10.I & Standard CC.3.5.11-12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiences...etc.

Instructional Activities:

Knowledge:

Complete textbook assignment(s)
Complete computer assignment(s) as needed
Complete laboratory activity and associated worksheet assignment
Complete activities assigned for TestOut-LabSim
Participate in theory lesson and respond to questions
Participate in group activities according to specific content assignment
Take notes during theory lesson and keep a notebook
Complete Study Guide according to instructions

Skill:

Complete laboratory activity and associated worksheet assignment
Complete activities assigned for TestOut-LabSim
Complete tutorial software assignments
Install and configure a hub, switch, and router
Install, configure, and secure a wireless network

Remediation:

Make corrections to graded work
Re-teach major concepts
Review with teacher assistance
Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Study groups
Review games
Reading comprehension packets
Placing events in a time line
Create a chart
Retest or alternative assessment
Technology integration
Study guides
Computer assisted instruction
Checklists

Enrichment:

Research an approved topic
Do live work
Use TestOut for review
Conduct a safety review of the laboratory area and classroom
Live work

Special Adaptations:

- Extended Time (assignments and/or testing)
- Graphic Organizer
- Chunking of Assignments/Material
- Preferential Seating
- Directions/Comprehension Check (frequent checks for understanding)
- Study Guide
- Directions and/or Tests Read Aloud
- Adapted Tests and/or Assignments
- Use of Calculator
- Taking Tests in Alternate Setting (or if requested)
- Verbal/Gestural Redirection (prompts to remain on task)
- Drill and Practice (Repetition of Material)

- No Penalization for Spelling
- Copy of Teacher/Student Notes/Skeleton Notes
- Small Group Instruction
- Provide Visual Model to Accompany Verbal Directions (Written/Oral Directions)
- Use of Daily Planner/Assignment Book (monitor use of)
- Teacher Modeling
- Use of Computer (Access to)
- Wait Time
- Access to School Counselor
- Use of Highlighter/Highlighted Text
- Provide Frequent Feedback
- Variety of Assessment Methods
- Use of Assistive Device (i.e. notepad, laptop, etc.)
- Highly Structured Classroom
- Syllabus for Major Projects
- Grading Rubric
- Communication Regarding Behavior & Consequences (PBS)
- Clear Language for Directions
- Use of Multisensory Approach
- Provide Opportunities to Retest
- Frequent Review Sessions
- Use a variety of Modalities when Introducing Skills/Concepts
- Books on Tape or CD
- Allow Oral Answers for Testing
- Provide Editing Assistance
- Copies of Text for Home
- De-Escalation Opportunities
- Cue for Oral Response
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- Daily Classwork Check
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- Opportunities for Repeated Practice of MATH Skills
- Provide repetition During Initial Instruction
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- All Vocabulary to be Defined Before Testing
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- Access to Closed Captioning as Available (upon request)
- Encouragement to Participate in Positive Leadership Roles
- Student Self-Evaluation for Behavior
- Exempt from reading Aloud in Front of Peers

Safety:

Student must:

Use computer equipment in an ergonomic fashion
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Use proper safety precautions when using /operating hand tools
Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times
Follow proper classroom procedures

Assessment:

- TestOut Test
- Worksheets
- Quizzes
- Pre/Post Tests
- Essays
- Focused Free Write
- Summaries
- Log/Journal
- Time Cards
- Writing Activities
- Video/DVD Worksheets
- Rubrics
- Check Lists
- Role-play Activities
- Debates
- Oral Presentation
- Group Projects
- Research Papers
- Current Events
- Any content related assessment
- Portfolio

Resources/Equipment:

- MSDS binder
- Fire extinguisher
- Internet access
- Whiteboard
- LCD Projector
- Personal Computer
- Cisco Router
- Cisco Firewall
- Switch
- Hub
- Ribcage
- Toolkit
- Antistatic Wriststrap
- Multimeter
- Cable Tester
- Cable Termination Kit
- Network Analyzer
- Scanner
- Hewlett Packard Server
- Laptop
- Power Supply Tester
- Power On Self-Test (POST) Card
- Laser Printer
- Dot Matrix Printer
- Inkjet Printer
- Digital Camera
- Webcam
- Uninterruptible Power Supply (UPS)
- Microsoft Disk Operating System (DOS)
- Microsoft Windows XP, Vista, 7 Op Systems
- Linux/Unix Operating Systems
- Wireless Access Point
- TestOut Software
- Microsoft Office
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www.professormesser.com

Monroe Career & Technical Institute
Course: Computer Networking and Security

Unit Name: L1800 - ACCESS CONTROL AND IDENTITY MANAGEMENT

Unit Number: L1800

Dates: Spring 2016 **Hours:** 20.00

Last Edited By: Computer Networking & Security (05-11-2016)

Unit Description / Objectives:

Student will know and be able to implement appropriate security controls related to authentication and account management.

Tasks:

L1801 - Explain the function and purpose of authentication services

L1802 - Explain the fundamental concepts and best practices related to authentication, authorization and access control

L1803 - Implement appropriate security controls when performing account management

Standards / Assessment Anchors

Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

KEY IDEAS/DETAILS GRADES 9-10-11-12
Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.

Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.

Standard CC.3.5.9-10.C / Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.

CRAFT & STRUCTURE GRADES 9-10-11-12
Standard CC.3.5.9-10. D / Standard CC.3.5.11-12.D Determine the meaning of symbols, key terms, and other domain specific words.

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Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.

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- Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6

Supporting Anchor/Standards:

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Assessment:

TestOut Test	Log/Journal	Debates
Worksheets	Time Cards	Oral Presentation
Quizzes	Writing Activities	Group Projects
Pre/Post Tests	Video/DVD Worksheets	Research Papers
Essays	Rubrics	Current Events
Focused Free Write	Check Lists	Any content related assessment
Summaries	Role-play Activities	Portfolio

Resources/Equipment:

SDS binder
Fire extinguisher
Internet access
Whiteboard
LCD Projector
Personal Computer
Cisco Router
Cisco Firewall
Switch
Hub
Ribcage
Toolkit
Antistatic Wriststrap
Multimeter
Cable Tester
Cable Termination Kit
Network Analyzer
Scanner
Hewlett Packard Server
Laptop
Power Supply Tester
Power On Self-Test (POST) Card
Laser Printer
Dot Matrix Printer
Inkjet Printer
Digital Camera
Webcam
Uninterruptible Power Supply (UPS)
Microsoft Disk Operating System (DOS)
Microsoft Windows XP, Vista, 7 Operating Systems
Linux/Unix Operating Systems
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Monroe Career & Technical Institute
Course: Computer Networking and Security

Unit Name: L1900 - CRYPTOGRAPHY
Unit Number: L1900

Dates: Spring 2016 **Hours:** 20.00

Last Edited By: Computer Networking & Security (05-11-2016)

Description / Objectives:

Student will know and be able to implement appropriate types of cryptography, PKI and certificate management.

Tasks:

L1901 - Summarize general cryptography concepts

L1902 - Use and apply appropriate cryptographic tools and products

L1903 - Explain the core concepts of public key infrastructure

L1904 - Implement PKI, certificate management and associated components

Standards / Assessment Anchors

Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

KEY IDEAS/DETAILS GRADES 9-10-11-12
Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.

Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.

Standard CC.3.5.9-10.C / Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.

CRAFT & STRUCTURE GRADES 9-10-11-12
Standard CC.3.5.9-10. D / Standard CC.3.5.11-12.D Determine the meaning of symbols, key terms, and other domain specific words.

Standard CC.3.5.9-10.E / Standard CC.3.5.11-12.E Analyze the structure of the relationships among concepts in a text, etc.

Standard CC.3.5.9-10.F / Standard CC.3.5.11-12.F Analyze the author's purpose in providing an explanation, describing a procedure...and Analyze the structure of the relationships among concepts in a text.

INTEGRATE KNOWLEDGE & IDEAS GRADES 9-10
Standard CC.3.5.9-10.G Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).

Standard CC.3.5.9-10. H Assess the reasoning in a text to support the author's claim for solving a technical problem.

Standard CC.3.5.9-10. I Compare and contrast findings presented in a text to those from other sources, etc.

INTEGRATE KNOWLEDGE & IDEAS GRADES 11-12
Standard CC.3.5.11-12. G Integrate and evaluate multiple sources of information presented in diverse formats...to solve a problem.

Standard CC.3.5.11-12. H Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible.

Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.

RANGE OF READING GRADES 9-10-11-12
Standard CC.3.5.9-10.J / Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11- 12, read and comprehend technical texts independently and proficiently.

Focus Anchor/Standard #2:

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Supporting Anchor/Standards:

TEXT TYPES AND PURPOSE GRADES 9-10-11-12
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Standard CC.3.6.9-10.B Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc.

PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10-11-12
Standard CC.3.6.9-10.C Standard CC.3.6.11-12 C Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D Standard CC.3.6.11-12.D Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.9-10.E Standard CC.3.6.11-12.E. Use technology, including the internet, to produce, publish, and update individual or shared writing products.

RESEARCH GRADES 9-10-11-12
Standard CC.3.6.9-10.F Standard CC.3.6.11-12.F Conduct short and more sustained research to answer a question or solve a problem.

Standard CC.3.6.9-10.G. Standard CC.3.6.11-12.G Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation.

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Standard CC.3.5.9-10.I & Standard CC.3.5.11-12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiences...etc.

Connecting Anchor/Standard:

- Pennsylvania Core Standards for Mathematics Standard 2.0

Supporting Anchor/Standards:

NUMBERS AND OPERATIONS
Standard 2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems.

Standard 2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multistep problems.

Standard 2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

Standard 2.1.HS.F.6 Extend the knowledge of arithmetic operations and apply to complex numbers

Instructional Activities:

Knowledge:
Complete textbook assignment(s)
Complete computer assignment(s) as needed
Complete laboratory activity and associated worksheet assignment
Complete activities assigned for TestOut-LabSim
Participate in theory lesson and respond to questions
Participate in group activities according to specific content assignment
Take notes during theory lesson and keep a notebook
Complete Study Guide according to instructions

Skill:
Complete laboratory activity and associated worksheet assignment
Complete activities assigned for TestOut-LabSim
Complete tutorial software assignments
Install and configure a hub, switch, and router
Install, configure, and secure a wireless network

Remediation:
Make corrections to graded work
Re-teach major concepts
Review with teacher assistance
Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Study groups
Review games
Reading comprehension packets
Placing events in a time line
Create a chart
Retest or alternative assessment
Technology integration
Study guides
Computer assisted instruction
Checklists

Enrichment:
Research an approved topic
Do live work
Use TestOut for review
Conduct a safety review of the laboratory area and classroom
Live work

Special Adaptations:
- Extended Time (assignments and/or testing)
- Graphic Organizer
- Chunking of Assignments/Material

- Preferential Seating
- Directions/Comprehension Check (frequent checks for understanding)
- Study Guide
- Directions and/or Tests Read Aloud
- Adapted Tests and/or Assignments
- Use of Calculator
- Taking Tests in Alternate Setting (or if requested)
- Verbal/Gestural Redirection (prompts to remain on task)
- Drill and Practice (Repetition of Material)
- No Penalization for Spelling
- Copy of Teacher/Student Notes/Skeleton Notes
- Small Group Instruction
- Provide Visual Model to Accompany Verbal Directions (Written/Oral Directions)
- Use of Daily Planner/Assignment Book (monitor use of)
- Teacher Modeling
- Use of Computer (Access to)
- Wait Time
- Access to School Counselor
- Use of Highlighter/Highlighted Text
- Provide Frequent Feedback
- Variety of Assessment Methods
- Use of Assistive Device (i.e. notepad, laptop, etc.)
- Highly Structured Classroom
- Syllabus for Major Projects
- Grading Rubric
- Communication Regarding Behavior & Consequences (PBS)
- Clear Language for Directions
- Use of Multisensory Approach
- Provide Opportunities to Retest
- Frequent Review Sessions
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- Books on Tape or CD
- Allow Oral Answers for Testing
- Provide Editing Assistance
- Copies of Text for Home
- De-Escalation Opportunities
- Cue for Oral Response
- Text to Speech (other than for NOCTI)
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- Provide repetition During Initial Instruction
- Provide Verbal and Written Directions
- All Vocabulary to be Defined Before Testing
- Testing - Allow Dictation of Lengthy Answers
- Monitor Speed/Accuracy in which Student Completes Assignment
- Access to Closed Captioning as Available (upon request)
- Encouragement to Participate in Positive Leadership Roles
- Student Self-Evaluation for Behavior
- Exempt from reading Aloud in Front of Peers

Safety:

Student must:

Use computer equipment in an ergonomic fashion

Handle material in a safe and work like manner

Use protective clothing and equipment

Use hand tools in a safe manner

Use adequate ventilation when working in enclosed area

Follow manufacturer's directions when using any product, tool, equipment, etc.

Use proper safety precautions when using /operating hand tools

Use tools and equipment in a professional work like manner according to OSHA standards

Know and follow the established safety rules at all times
Follow proper classroom procedures

Assessment:

TestOut Test	Log/Journal	Debates
Worksheets	Time Cards	Oral Presentation
Quizzes	Writing Activities	Group Projects
Pre/Post Tests	Video/DVD Worksheets	Research Papers
Essays	Rubrics	Current Events
Focused Free Write	Check Lists	Any content related assessment
Summaries	Role-play Activities	Portfolio

Resources/Equipment:

SDS binder	Antistatic Wriststrap	Inkjet Printer
Fire extinguisher	Multimeter	Digital Camera
Internet access	Cable Tester	Webcam
Whiteboard	Cable Termination Kit	Uninterruptible Power Supply (UPS)
LCD Projector	Network Analyzer	Microsoft Disk Operating System (DOS)
Personal Computer	Scanner	Microsoft Windows XP, Vista, 7 Op Systems
Cisco Router	Hewlett Packard Server	Linux/Unix Operating Systems
Cisco Firewall	Laptop	Wireless Access Point
Switch	Power Supply Tester	TestOut Software
Hub	Power On Self-Test (POST) Card	Microsoft Office
Ribcage	Laser Printer	ALICE
Toolkit	Dot Matrix Printer	

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Cisco Academy Labs

CTECH Copper & Fiber Program

Hyperlinks:

www.schoology.com
www.netacad.com
www.testout.com
www.professormesser.com

Monroe Career & Technical Institute
Course: Computer Networking and Security

Unit Name: L2000 - USE PRODUCTIVITY SOFTWARE

Unit Number: L2000

Dates: Spring 2016 **Hours:** 20.00

Last Edited By: Computer Networking & Security (05-11-2016)

Description / Objectives:

Student will know and be able to create, format, edit, export, and print word processing, spreadsheet, and presentation documents.

Tasks:

L2001 - List and describe several common application software suites.

L2002 - Create, format, and edit word processing documents.

L2003 - Create, format, and edit spreadsheets documents.

L2004 - Create, format, and edit a presentation using multimedia software

L2005 - Present a multimedia presentation

L2006 - Demonstrate the ability to save, export, and print documents using applications software.

L2007 - Use the appropriate tools to create and manipulate images in application software documents.

Standards / Assessment Anchors

Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

KEY IDEAS/DETAILS GRADES 9-10-11-12
Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.

Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.

Standard CC.3.5.9-10.C / Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.

CRAFT & STRUCTURE GRADES 9-10-11-12
Standard CC.3.5.9-10. D / Standard CC.3.5.11-12.D Determine the meaning of symbols, key terms, and other domain specific words.

Standard CC.3.5.9-10.E / Standard CC.3.5.11-12.E Analyze the structure of the relationships among concepts in a text, etc.

Standard CC.3.5.9-10.F / Standard CC.3.5.11-12.F Analyze the author's purpose in providing an explanation, describing a procedure...and Analyze the structure of the relationships among concepts in a text.

INTEGRATE KNOWLEDGE & IDEAS GRADES 9-10
Standard CC.3.5.9-10.G Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).

Standard CC.3.5.9-10. H Assess the reasoning in a text to support the author's claim for solving a technical problem.

Standard CC.3.5.9-10. I Compare and contrast findings presented in a text to those from other sources, etc.

INTEGRATE KNOWLEDGE & IDEAS GRADES 11-12
Standard CC.3.5.11-12. G Integrate and evaluate multiple sources of information presented in diverse formats...to solve a problem.

Standard CC.3.5.11-12. H Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible.

Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.

RANGE OF READING GRADES 9-10-11-12
Standard CC.3.5.9-10.J / Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11- 12, read and comprehend technical texts independently and proficiently.

Focus Anchor/Standard #2:

- Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6

Supporting Anchor/Standards:

TEXT TYPES AND PURPOSE GRADES 9-10-11-12
Standard CC.3.6.9-10.A Standard CC.3.6.11-12.A Write arguments focused on discipline specific content.

Standard CC.3.6.9-10.B Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc.

PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10-11-12
Standard CC.3.6.9-10.C Standard CC.3.6.11-12 C Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D Standard CC.3.6.11-12.D Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.9-10.E Standard CC.3.6.11-12.E. Use technology, including the internet, to produce, publish, and update individual or shared writing products.

RESEARCH GRADES 9-10-11-12
Standard CC.3.6.9-10.F Standard CC.3.6.11-12.F Conduct short and more sustained research to answer a question or solve a problem.

Standard CC.3.6.9-10.G. Standard CC.3.6.11-12.G Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation.

Standard CC.3.6.9-10.H. Standard CC.3.6.11-12.H. Draw evidence from informational texts to support analysis, reflection, and research.

RANGE OF WRITING GRADES 9-10-11-12
Standard CC.3.5.9-10.I & Standard CC.3.5.11-12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiences...etc.

Connecting Anchor/Standard:

- Pennsylvania Core Standards for Mathematics Standard 2.0

Supporting Anchor/Standards:

NUMBERS AND OPERATIONS
Standard 2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems.

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Standard 2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

Standard 2.1.HS.F.6 Extend the knowledge of arithmetic operations and apply to complex numbers

Instructional Activities:

Knowledge:

Complete textbook assignment(s)
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Complete laboratory activity and associated worksheet assignment
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Participate in theory lesson and respond to questions
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Install and configure a hub, switch, and router
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Remediation:

Make corrections to graded work
Re-teach major concepts
Review with teacher assistance
Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Study groups
Review games
Reading comprehension packets
Placing events in a time line
Create a chart
Retest or alternative assessment
Technology integration
Study guides
Computer assisted instruction
Checklists

Enrichment:

Research an approved topic
Do live work
Use TestOut for review
Conduct a safety review of the laboratory area and classroom
Live work

Special Adaptations:

- Extended Time (assignments and/or testing)
- Graphic Organizer
- Chunking of Assignments/Material
- Preferential Seating
- Directions/Comprehension Check (frequent checks for understanding)
- Study Guide
- Directions and/or Tests Read Aloud
- Adapted Tests and/or Assignments
- Use of Calculator
- Taking Tests in Alternate Setting (or if requested)
- Verbal/Gestural Redirection (prompts to remain on task)
- Drill and Practice (Repetition of Material)
- No Penalization for Spelling
- Copy of Teacher/Student Notes/Skeleton Notes
- Small Group Instruction
- Provide Visual Model to Accompany Verbal Directions (Written/Oral Directions)
- Use of Daily Planner/Assignment Book (monitor use of)
- Teacher Modeling
- Use of Computer (Access to)
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- Provide Frequent Feedback
- Variety of Assessment Methods
- Use of Assistive Device (i.e. notepad, laptop, ect.)
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Safety:

Student must:
Use computer equipment in an ergonomic fashion
Handle material in a safe and work like manner
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Use hand tools in a safe manner
Use adequate ventilation when working in enclosed area
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Use proper safety precautions when using /operating hand tools
Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times
Follow proper classroom procedures

Assessment:

TestOut Test
Worksheets
Quizzes
Pre/Post Tests
Essays
Focused Free Write
Summaries
Log/Journal
Time Cards
Writing Activities
Video/DVD Worksheets
Rubrics
Check Lists
Role-play Activities
Debates
Oral Presentation
Group Projects
Research Papers
Current Events
Any content related assessment
Portfolio

Resources/Equipment:

MSDS binder
Fire extinguisher
Internet access
Whiteboard
LCD Projector
Personal Computer
Cisco Router
Cisco Firewall
Switch
Hub
Ribcage
Toolkit
Antistatic Wriststrap
Multimeter
Cable Tester
Cable Termination Kit
Network Analyzer
Scanner
Hewlett Packard Server
Laptop
Power Supply Tester
Power On Self-Test (POST) Card

Laser Printer
Dot Matrix Printer
Inkjet Printer
Digital Camera
Webcam
Uninterruptible Power Supply (UPS)
Microsoft Disk Operating System (DOS)
Microsoft Windows XP, Vista, 7 Operating Systems
Linux/Unix Operating Systems
Wireless Access Point
TestOut Software
Microsoft Office
ALICE

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Hyperlinks:

www.schoology.com

www.netacad.com

www.testout.com

www.professormesser.com

Monroe Career & Technical Institute
Course: Computer Networking and Security

Unit Name: L2100 – DATABASE ADMINISTRATION

Unit Number: L2100

Dates: Spring 2013 **Hours:** 10.00

Last Edited By: Computer Networking & Security (05-11-2016)

Unit Description / Objectives:

Student will know and be able to create and maintain a database. Student will understand how to create queries and reports.

Tasks:

L2101 - Demonstrate a working knowledge of database design fundamentals and terminology

L2102 - Enter, update and maintain databases.

L2103 - Create reports, forms and combo boxes.

L2104 - Import and Export data into other applications.

L2105 - Create data queries using simple and complex structured query language

Standards / Assessment Anchors

Focus Anchor/Standard #1:

- 13.2.11 E Demonstrate, in the career acquisition process, the application of essential workplace skills/knowledge, such as, but not limited to: commitment, communication, dependability, health/safety, laws and regulations (that is Americans with Disabilities Act, Child Labor Law, Fair Labor Standards Act, OSHA, Material Safety Data Sheets), personal initiative, Self-advocacy, scheduling/time management, team building, technical literacy and technology.

Supporting Anchor/Standards:

3.4.10.C1 Apply the components of the technological design process.

3.4.10.A2 Interpret how systems thinking applies logic and creativity with appropriate comprises in complex real-life problems.

3.4.12.B1 Analyze ethical, social, economic, and cultural considerations as related to the development, selection, and use of technologies.

3.4.10.E7 Evaluate structure design as related to function, considering such factors as style, convenience, safety, and efficiency.

3.4.10.A1 Illustrate how the development of technologies is often driven by profit and an economic market.

Focus Anchor/Standard #2:

- CC.3.5.11-12.C. Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

Supporting Anchor/Standards:

CC.3.6.11-12.C. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience

CC.3.6.11-12.B. Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes

CC.2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems.

CC.2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multi-step problems.

CC.2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

CC.2.1.HS.F.6 Extend the knowledge of arithmetic operations and apply to complex numbers.

Connecting Anchor/Standard:

- CC.2.1.6.E.2 Identify and choose appropriate processes to compute fluently with multi-digit numbers.

Supporting Anchor/Standards:

CC.2.1.7.D.1 Analyze proportional relationships and use them to model and solve real-world and mathematical problems.

CC.2.2.7.B.3 Model and solve real-world and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations.

CC.2.3.7.A.1 Solve real-world and mathematical problems involving angle measure, area, surface area, circumference, and volume.

CC.2.3.8.A.1 Apply the concepts of volume of cylinders, cones, and spheres to solve real-world and mathematical problems.

CC.2.4.5.A.1 Solve problems using conversions within a given measurement system.

Instructional Activities:

Knowledge:

Complete textbook assignment(s)
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Worksheets
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Time Cards
Writing Activities
Video/DVD Worksheets
Rubrics
Check Lists
Role-play Activities
Debates
Oral Presentation
Group Projects
Research Papers
Current Events
Any content related assessment
Portfolio

Resources/Equipment:

- MSDS binder
- Fire extinguisher
- Internet access
- Whiteboard
- LCD Projector
- Personal Computer
- Cisco Router
- Cisco Firewall
- Switch
- Hub
- Ribcage
- Toolkit
- Antistatic Wriststrap
- Multimeter
- Cable Tester
- Cable Termination Kit
- Network Analyzer
- Scanner
- Hewlett Packard Server
- Laptop
- Power Supply Tester
- Power On Self-Test (POST) Card
- Laser Printer
- Dot Matrix Printer
- Inkjet Printer
- Digital Camera
- Webcam
- Uninterruptible Power Supply (UPS)
- Microsoft Disk Operating System (DOS)
- Microsoft Windows XP, Vista, 7 Operating Systems
- Linux/Unix Operating Systems
- Wireless Access Point
- TestOut Software
- Microsoft Office
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Monroe Career & Technical Institute
Course: Computer Networking and Security

Unit Name: L2200 - FUNDAMENTALS OF PROGRAMMING / SYSTEM DEVELOPMENT

Unit Number: L2200

Dates: Spring 2016 **Hours:** 20.00

Last Edited By: Computer Networking & Security (05-11-2016)

Description / Objectives:

Student will know and be able to create, maintain, troubleshoot, and document basic programs. Student will understand the software development life cycle and the differences between types of code.

Tasks:

L2201 - Describe a working knowledge of the System Development LifeCycle (System investigation/project proposal, Analysis, Design, Code/Test, Implementation and Maintenance).

L2202 - Differentiate programming fundamentals - system processing, integration, generations of languages, binary code, object code, source code

L2203 - Declare and manipulate appropriate data types variables, such as arrays and string data.

L2204 - Utilize program control structures (for example: decisions, loops, functions/subroutines, arithmetic and logical operations, etc.)

Standards / Assessment Anchors

Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

KEY IDEAS/DETAILS GRADES 9-10-11-12
Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.

Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.

Standard CC.3.5.9-10.C / Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.

CRAFT & STRUCTURE GRADES 9-10-11-12
Standard CC.3.5.9-10. D / Standard CC.3.5.11-12.D Determine the meaning of symbols, key terms, and other domain specific words.

Standard CC.3.5.9-10.E / Standard CC.3.5.11-12.E Analyze the structure of the relationships among concepts in a text, etc.

Standard CC.3.5.9-10.F / Standard CC.3.5.11-12.F Analyze the author's purpose in providing an explanation, describing a procedure...and Analyze the structure of the relationships among concepts in a text.

INTEGRATE KNOWLEDGE & IDEAS GRADES 9-10
Standard CC.3.5.9-10.G Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).

Standard CC.3.5.9-10. H Assess the reasoning in a text to support the author's claim for solving a technical problem.

Standard CC.3.5.9-10. I Compare and contrast findings presented in a text to those from other sources, etc.

INTEGRATE KNOWLEDGE & IDEAS GRADES 11-12
Standard CC.3.5.11-12. G Integrate and evaluate multiple sources of information presented in diverse formats...to solve a problem.

Standard CC.3.5.11-12. H Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible.

Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.

RANGE OF READING GRADES 9-10-11-12
Standard CC.3.5.9-10.J / Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11- 12, read and comprehend technical texts independently and proficiently.

Focus Anchor/Standard #2:

- Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6

Supporting Anchor/Standards:

TEXT TYPES AND PURPOSE GRADES 9-10-11-12
Standard CC.3.6.9-10.A Standard CC.3.6.11-12.A Write arguments focused on discipline specific content.

Standard CC.3.6.9-10.B Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc.

PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10-11-12
Standard CC.3.6.9-10.C Standard CC.3.6.11-12 C Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D Standard CC.3.6.11-12.D Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.9-10.E Standard CC.3.6.11-12.E. Use technology, including the internet, to produce, publish, and update individual or shared writing products.

RESEARCH GRADES 9-10-11-12
Standard CC.3.6.9-10.F Standard CC.3.6.11-12.F Conduct short and more sustained research to answer a question or solve a problem.

Standard CC.3.6.9-10.G. Standard CC.3.6.11-12.G Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation.

Standard CC.3.6.9-10.H. Standard CC.3.6.11-12.H. Draw evidence from informational texts to support analysis, reflection, and research.

RANGE OF WRITING GRADES 9-10-11-12
Standard CC.3.5.9-10.I & Standard CC.3.5.11-12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiences...etc.

Connecting Anchor/Standard:

- Pennsylvania Core Standards for Mathematics Standard 2.0

Supporting Anchor/Standards:

NUMBERS AND OPERATIONS
Standard 2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems.

Standard 2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multistep problems.

Standard 2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

Standard 2.1.HS.F.6 Extend the knowledge of arithmetic operations and apply to complex numbers

Instructional Activities:

Knowledge:

Complete textbook assignment(s)
Complete computer assignment(s) as needed
Complete laboratory activity and associated worksheet assignment
Complete activities assigned for TestOut-LabSim
Participate in theory lesson and respond to questions
Participate in group activities according to specific content assignment
Take notes during theory lesson and keep a notebook
Complete Study Guide according to instructions

Skill:

Complete laboratory activity and associated worksheet assignment
Complete activities assigned for TestOut-LabSim
Complete tutorial software assignments
Install and configure a hub, switch, and router
Install, configure, and secure a wireless network

Remediation:

Make corrections to graded work
Re-teach major concepts
Review with teacher assistance
Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Study groups
Review games
Reading comprehension packets
Placing events in a time line
Create a chart
Retest or alternative assessment
Technology integration
Study guides
Computer assisted instruction
Checklists

Enrichment:

Research an approved topic
Do live work
Use TestOut for review
Conduct a safety review of the laboratory area and classroom
Live work

Special Adaptations:

- Extended Time (assignments and/or testing)
- Graphic Organizer
- Chunking of Assignments/Material
- Preferential Seating
- Directions/Comprehension Check (frequent checks for understanding)
- Study Guide
- Directions and/or Tests Read Aloud
- Adapted Tests and/or Assignments
- Use of Calculator
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- No Penalization for Spelling
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- Teacher Modeling
- Use of Computer (Access to)
- Wait Time
- Access to School Counselor
- Use of Highlighter/Highlighted Text
- Provide Frequent Feedback
- Variety of Assessment Methods
- Use of Assistive Device (i.e. notepad, laptop, etc.)
- Highly Structured Classroom
- Syllabus for Major Projects
- Grading Rubric
- Communication Regarding Behavior & Consequences (PBS)
- Clear Language for Directions
- Use of Multisensory Approach
- Provide Opportunities to Retest
- Frequent Review Sessions
- Use a variety of Modalities when Introducing Skills/Concepts
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- All Vocabulary to be Defined Before Testing
- Testing - Allow Dictation of Lengthy Answers
- Monitor Speed/Accuracy in which Student Completes Assignment
- Access to Closed Captioning as Available (upon request)
- Encouragement to Participate in Positive Leadership Roles
- Student Self-Evaluation for Behavior
- Exempt from reading Aloud in Front of Peers

Safety:

Student must:
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Handle material in a safe and work like manner
Use protective clothing and equipment
Use hand tools in a safe manner
Use adequate ventilation when working in enclosed area
Follow manufacturer's directions when using any product, tool, equipment, etc.
Use proper safety precautions when using /operating hand tools
Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times
Follow proper classroom procedures

Assessment:

TestOut Test
Worksheets
Quizzes
Pre/Post Tests
Essays
Focused Free Write
Summaries
Log/Journal
Time Cards
Writing Activities
Video/DVD Worksheets
Rubrics
Check Lists
Role-play Activities
Debates
Oral Presentation
Group Projects
Research Papers
Current Events
Any content related assessment
Portfolio

Resources/Equipment:

SDS binder
Fire extinguisher
Internet access
Whiteboard
LCD Projector
Personal Computer
Cisco Router
Cisco Firewall
Switch
Hub
Ribcage
Toolkit
Antistatic Wriststrap
Multimeter
Cable Tester
Cable Termination Kit
Network Analyzer
Scanner
Hewlett Packard Server
Laptop
Power Supply Tester
Power On Self-Test (POST) Card

Laser Printer
Dot Matrix Printer
Inkjet Printer
Digital Camera
Webcam
Uninterruptible Power Supply (UPS)
Microsoft Disk Operating System (DOS)
Microsoft Windows XP, Vista, 7 Operating Systems
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Wireless Access Point
TestOut Software
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Cisco Academy Labs

CTECH Copper & Fiber Program

Hyperlinks:

www.schoology.com

www.netacad.com

www.testout.com

www.professormesser.com

Monroe Career & Technical Institute
Course: Computer Networking and Security

Unit Name: L2300 - DESIGN AND CREATE WEBSITES

Unit Number: L2300

Dates: Spring 2016 **Hours:** 10.00

Last Edited By: Computer Networking & Security (05-11-2016)

Unit Description / Objectives:

Student will know and be able to create, maintain, and critique a website.

Tasks:

L2301 - Demonstrate proper use of an HTML text editor.

L2302 - Create tables and hyperlinks in HTML.

L2303 - Apply structural requirements (information architecture) for development of a website.

L2304 - Format, edit, and proofread a website.

L2305 - Demonstrate publishing, updating, maintaining and testing a website.

L2306 - Critique a Web site according to accepted Web site design principles.

L2307 - Format and insert multimedia in a webpage

L2308 - Demonstrate knowledge of web server technology.

Standards / Assessment Anchors

Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

KEY IDEAS/DETAILS GRADES 9-10-11-12
Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.

Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.

Standard CC.3.5.9-10.C / Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.

CRAFT & STRUCTURE GRADES 9-10-11-12
Standard CC.3.5.9-10. D / Standard CC.3.5.11-12.D Determine the meaning of symbols, key terms, and other domain specific words.

Standard CC.3.5.9-10.E / Standard CC.3.5.11-12.E Analyze the structure of the relationships among concepts in a text, etc.

Standard CC.3.5.9-10.F / Standard CC.3.5.11-12.F Analyze the author's purpose in providing an explanation, describing a procedure...and Analyze the structure of the relationships among concepts in a text.

INTEGRATE KNOWLEDGE & IDEAS GRADES 9-10
Standard CC.3.5.9-10.G Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).

Standard CC.3.5.9-10. H Assess the reasoning in a text to support the author's claim for solving a technical problem.

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Cisco Router
Cisco Firewall
Switch
Hub

Ribcage
Toolkit
Antistatic Wriststrap
Multimeter
Cable Tester
Cable Termination Kit
Network Analyzer
Scanner
Hewlett Packard Server
Laptop
Power Supply Tester
Power On Self-Test (POST) Card
Laser Printer
Dot Matrix Printer
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