



Multiple Category Scope and Sequence: Scope and Sequence Report For Course Standards and Objectives, Content, Skills, Vocabulary

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	Unit	Course Standards and Objectives	Content	Skills	Vocabulary
<p>District Advanced <u>A+ (Computer Maintenance) (11.9920)</u> <u>(District) Collaboration</u> 2014-2015</p>	<p><u>U1: Professionalism and Computer Basics</u> (Week 1, 1 Week) </p>	<p>UT: CTE: Information Technology, UT: Grades 9-12, Computer Maintenance & Repair (A+) Standard 2 Students will demonstrate Troubleshooting, Repair and Maintenance Skills.</p> <ul style="list-style-type: none"> ▪ Objective 1 Given a scenario, explain the troubleshooting theory. <ol style="list-style-type: none"> a. Identify the problem - Question the user and identify user changes to computer and perform backups before making changes b. Establish a theory of probable cause (question the obvious) c. Test the theory to determine cause - Once theory is confirmed determine next steps to resolve problem, If theory is not confirmed re-establish new theory or escalate d. Establish a plan of action to resolve the problem and implement the solution e. Verify full system functionality and if applicable implement preventative measures f. Document findings, actions and outcomes <p>Standard 6 Students will understand and use Operational Procedures</p> <ul style="list-style-type: none"> ▪ Objective 2 Given a scenario, demonstrate the appropriate use of communication skills and 	<ul style="list-style-type: none"> ▪ Basic components and functions of a computer ▪ The art of elicitation ▪ Importance of respect and integrity when dealing with customers ▪ Troubleshooting methodology ▪ Legacy vs Modern Ports 	<ul style="list-style-type: none"> ▪ Identify the component of a basic computer ▪ Effectively interface with a customer to address their concerns with their computer ▪ Summarize the troubleshooting process 	<ol style="list-style-type: none"> 1. Documentation 2. RAM 3. OS 4. Server 5. Memory Stick 6. My Documents 7. Peripheral 8. Plug and Play 9. Port (input/output) 10. Printer 11. Software 12. Tablet PC 13. Toner 14. Toner Cartridge 15. USB 16. Mouse 17. User Account 18. WAV 19. Anti-aliasing 20. Anti-static 21. Anti-Static Mat 22. Antistatic Bag 23. Wrist Strap 24. Daily Backup 25. DHCP 26. DOS 27. Laser Printer 28. Legacy Device 29. Raster 30. UPS

professionalism in the workplace

- a. Tell why it is important to use proper language – avoid jargon, acronyms, slang.
- b. Explain the benefits of maintaining a positive attitude.
- c. Describe why it is critical to listen and not interrupt a customer.
- d. Tell how to be culturally sensitive.
- e. Outline why it is important to be on time - If late contact the customer.
- f. Explain why one should avoid distractions - Personal calls, Talking to co-workers while interacting with customers, Personal interruptions.
- g. List several skills to deal with a difficult customer or situation - Avoid arguing with customers and/or being defensive, Do not minimize customers' problems, Avoid being judgmental, Clarify customer statements.
- h. Tell why one should set and meet expectations / timeline and communicate status with the customer - Offer different repair / replacement options if applicable, Provide proper documentation on the services provided, Follow up with customer / user at a later date to verify satisfaction.
- i. Explain how to deal appropriately with customers confidential materials - Located on computer, desktop, printer, etc.

U2: Windows

Grand Tour

(Week 2, 2 Weeks) 

UT: CTE: Information Technology, UT: Grades 9-12, Computer Maintenance & Repair (A+) Standard 3

Students will understand Operating Systems and Software - Unless otherwise noted, operating systems referred to within include Microsoft

- Differences between Windows operating systems
 - Operating system interface basics
 - Command line navigation
 - Hot Keys
- Locate the following areas within the Windows operating system: Command Line, Start Menu, My Documents, User Files, Task bar, Quick Launch, Notification
1. GUI (Not in glossary)
 2. UI (Not in glossary)
 3. Windows 2000
 4. Windows 9x
 5. Windows NT
 6. Windows Vista
 7. WindowsXP
 8. User Interface

Windows 2000, Windows XP Professional, XP Home, XP MediaCenter, Windows Vista Home, Home Premium, Business and Ultimate.

- Objective 1
Compare and contrast the different Windows Operating Systems and their features.
 - a. Differentiate between 32 bit vs. 64 bit operating systems.
 - b. List the differences between Windows 2000, Windows XP, Windows Vista, minimum system requirements, system limits, upgrade paths.
 - c. Outline Windows compatibility mode, User interface, start bar layout.
- Objective 2
Given a scenario, demonstrate proper use of user interfaces.
 - a. Demonstrate how to navigate the file structure with Windows Explorer.
 - b. Show proper use of My Computer to navigate the file structure.
 - c. Use Control Panel to manage computer settings.
 - d. Use Command prompt utilities - telnet, ping, ipconfig.
 - e. Run line utilities - msconfig, msinfo32, DxDiag, Cmd, REGEDIT, DIR, COPY, XCOPY, /?, MD, CD, RD.
 - f. Navigate to network resources using My Network Places.
 - g. List the functions of the Task bar / systray.
 - h. Illustrate proper use of Administrative tools - Performance monitor, Event Viewer, Services, Computer Management.
 - i. Demonstrate how to start Task Manager and what benefit it offers.
 - j. Show how to modify the Start Menu and how it may facilitate computer use.
 - k. Use System tools - Disk

Area, Registry, Control Panels, Device Manager

- Show a basic understanding of hot key functionality
- Differentiate between different operating systems

9. DIR Command
10. Platform
11. Power User
12. Program / Programming
13. Sound and Audio Devices
14. Standard Account
15. Startup Disk
16. Super User
17. Task Manager
18. User Profiles

Clean Up, Defrag.

U3: Internal

Hardware (Week 4, 3 Weeks)

UT: CTE: Information Technology, UT:
Grades 9-12, Computer Maintenance &
Repair (A+)

Standard 1

Students will identify, classify, install,
configure and maintain, detect problems
with, troubleshoot, repair or replace
Personal Computer hardware
components.

- Objective 4
Explain the purpose,
characteristics, and features of
CPUs; install, detect problems
with CPUs
 - a. Differentiate CPU types -
AMD, Intel.
 - b. Describe hyper threading.
 - c. Differentiate multi core -
Dual core, Triple core, Quad
core.
 - d. Define onchip cache - L1,
L2.
 - e. Explain real speed vs.
actual speed.
 - f. Distinguish 32bit vs. 64 bit
CPUs.
- Objective 5
Identify, install and detect
problems with cooling devices
 - a. Recognize importance of
heat sinks.
 - b. Maintain CPU and case
fans.
 - c. Describe liquid cooling
systems.
 - d. Depict how and where to us
thermal compound.
- Objective 6
Compare and contrast memory
types, install, troubleshoot
memory
 - a. Differentiate memory types -
DRAM, SRAM, SDRAM, DDR
/ DDR2 / DDR3, RAMBUS.
 - b. Compare Parity vs. Non-
parity memory technology.
 - c. Contrast ECC vs. non-ECC
memory technology.
 - d. Describe single sided vs.

- An understanding of the
system registry and the
important role it plays in the
windows environment
- A clear understanding of
microprocessors and the role
they play
- Machine language
- Pipelines
- Clock Multiplier
- The history, differences and
installation of a CPU
- Types, languages,
installation and maintenance
of RAM
- BIOS and CMOS capabilities
and management

- Successfully install a
CPU
- Select and install the
appropriate cooling
system for the CPU
installed
- Select the appropriate
RAM compatible with
the motherboard, and
intended use of the
system

1. Access Speed
2. Archive
3. Archive Attribute
4. Asynchronous
5. Binary numbers
6. BIOS
7. Bit
8. Boot
9. Boot Sector
10. BOOT.INI
11. Bus
12. Byte
13. Cache Memory
14. CardBus
15. Celeron
16. Chipset
17. Clock
18. Clock Multiplying CPU
19. Clock Speed
20. Core
21. Data Structure
22. Debug
23. Default
24. Degauss
25. DIMM (Dual Inline Pin
Package)
26. DIPP (Dual Inline Pin
Package)
27. DRAM (Dynamic
Random Access
Memory or Dynamic
RAM)
28. Duron
29. EDO RAM
30. L3 Cache
31. Level 1 (L1) Cache
32. Level 2 (L2) Cache
33. MCC (Memory
Controller Chip)
34. Micro DIMM
35. MicroATX
36. Microprocessor
37. MIPS (Millions of
Instructions Per
Second)
38. MMC (Microsoft
Management Console)
39. NetBIOS Name
40. PCIe
41. Pipeline
42. SDRAM

double sided memory.
 e. Characterize single channel vs. dual channel memory.
 f. Summarize speed - PC100, PC133, PC2700, PC3200, DDR3-1600, DDR2-667

- Objective 9
 Summarize the function and types of adapter cards
 - a. Recognize video adapters - PCI, PCIe, AGP.
 - b. Identify and configure multimedia devices - Sound card, TV tuner cards, Capture cards.
 - c. Describe I/O systems - SCSI, Serial, USB, Parallel.
 - d. Define data communications - NIC, Modem.

43. SO DIMM
44. System Attribute
45. System BOS
46. System Crystal
47. System Monitor
48. System Restore
49. System ROM
50. System Tray
51. Thread
52. Virtual
53. Virtual Memory
54. Volts (V)
55. VRAM
56. Wattage

U4: Hard Drives and Cases



(Week 7, 4 Weeks)

UT: CTE: Information Technology, UT: Grades 9-12, Computer Maintenance & Repair (A+) Standard 1

Students will identify, classify, install, configure and maintain, detect problems with, troubleshoot, repair or replace Personal Computer hardware components.

- Objective 1
 Categorize, install, configure and maintain storage devices and backup media.
 - a. Describe magnetic storage media.
 - b. Contrast Solid state vs. magnetic media.
 - c. Compare Optical drives CD / DVD / RW / Blu-Ray.
 - d. Indicate functions of Tape drives and media.
- Objective 2
 Identify types and features, install, configure and maintain motherboard components.
 - a. Recognize form factors of motherboards.
 - b. Distinguish I/O interfaces - Sound, Video, USB, Serial, IEEE 1394 / Firewire, Parallel, NIC, Modem, PS/2.

- Motherboard selection and identification
- Key role of power management in computers
- Motherboard components
- Interface recognition and use
- Differences in hard drives and utility of each type
- Backup options both hardware driven and software driven
- Hard drive installation type and process
- Removable media: types, utility, pros and cons

- Select and successfully install a motherboard
- Select and install the appropriate hard drive and components for a system with a pre-defined use
- Build an appropriate backup system designed for the intended use of the system built
- Contrast systems to identify appropriateness of the components and hardware selected

1. 3.5 inch Floppy Drive Format
2. 40-pin Ribbon Cable
3. 50-pin Ribbon Cable
4. 68-pin Ribbon Cable
5. AT
6. Blue-ray Disc
7. BTX
8. Disk Drive Controller
9. Mass Storage
10. Molex Connector
11. Motherboard Book
12. Multisession Drive
13. NTFS
14. NTFS Permissions
15. Partition Table
16. PC Card
17. POST Cards
18. PostScript
19. Power Conditioning
20. RAID-5 Volume
21. SCSI-2
22. SCSI-3
23. SCSI-3
24. SMM
25. Snap-Ins
26. Soft Power
27. Soft-off by PWRBTN
28. Spool
29. Swap File
30. Terabyte
31. Ultra DMA
32. Volume

- c. Differentiate memory slots types - RIMM, DIMM, SODIMM, SIMM.
- d. Identify modern processor sockets.
- e. Differentiate bus architectures.
- f. Characterize Bus slots - PCI, AGP, PCIe, AMR, CNR, PCMCIA.
- g. Recognize PATA - IDE, EIDE connectors and devices.
- h. Identify SATA, eSATA connectors and devices.
- i. Contrast RAID levels 0, 1, 5.
- j. Identify Chipsets.
- k. BIOS / CMOS / Firmware - POST, CMOS battery.
- l. Describe Riser card / daughterboard.
- Objective 3
Classify types and characteristics, detect problems, troubleshoot, repair/replace power supplies
 - a. Describe AC adapter.
 - b. Recognize ATX proprietary.
 - c. Define voltage, wattage and capacity.
 - d. Identify voltage selector switch.
 - e. Describe connector types - 4, 6, 20, 24 pin.
- Objective 9
Summarize the function and types of adapter cards
 - a. Recognize video adapters - PCI, PCIe, AGP.
 - b. Identify and configure multimedia devices - Sound card, TV tuner cards, Capture cards.
 - c. Describe I/O systems - SCSI, Serial, USB, Parallel.
 - d. Define data communications - NIC, Modem.

Standard 2
Students will demonstrate
Troubleshooting, Repair and
Maintenance Skills.

- Objective 5

Given a scenario, integrate common preventative maintenance techniques.

- Perform a physical inspection of a PC.
- Obtain and install updates - Driver, Firmware, OS, Security.
- Schedule preventative maintenance - Defrag, Scandisk, Check disk, Startup programs.
- Use appropriate repair tools and cleaning materials - Compressed air, Lint free cloth, Computer vacuum and compressors.
- Manage appropriate power devices - Power strip, surge protector or UPS
- Describe how to ensure proper environment to promote preventative maintenance.
- Outline proper backup procedures.

U5: Windows Management 
 (Week 11, 3 Weeks)


UT: CTE: Information Technology, UT: Grades 9-12, Computer Maintenance & Repair (A+) Standard 2
 Students will demonstrate Troubleshooting, Repair and Maintenance Skills.

- Objective 2
 Given a scenario, explain and interpret common hardware and operating system symptoms and their causes.
 - Identify OS related symptoms - Bluescreen, System lock-up, Input/output device, Application install, Start or load, Windows specific printing problems.
 - Recognize hardware related symptoms - Excessive heat, Noise, Odors, Status light indicators, Alerts, Visible damage (e.g. cable, plastic).
 - Use documentation and resources - User / installation manuals, Internet / web based,

- Operating system installation process
- Backup and operating system restoration process
- Troubleshooting process
- Operating system management
- File system types, advantages/disadvantages

- Complete a successful installation of an operating system
- Create a backup of a system and effectively restore a clean backup
- Identify the difference between file systems
- Match the appropriate files system with the intended use of the system

- 8.3 Naming System
- Administrative Tools
- Administrator Account
- Advanced Startup Options Menu
- ASD
- ATTRIB.EXE
- Autodetection
- Award Softward
- Baseline
- Basic Disk
- Bootable Disk
- Bootstrap Loader
- CAB Files
- Clean Installation
- CMD.EXE
- DetLog.txt
- Device Manager
- Device Number
- Differential Backup
- Disk Mirroring
- Distro
- Dual Boot
- Dynamic Disk
- Limited Account
- Linux
- Low-level Format

Training materials.

Standard 3


Students will understand Operating Systems and Software - Unless otherwise noted, operating systems referred to within include Microsoft Windows 2000, Windows XP Professional, XP Home, XP MediaCenter, Windows Vista Home, Home Premium, Business and Ultimate.

- Objective 3
Explain the process and steps to install and configure the Windows OS.
 - a. Differentiate file systems - FAT32 vs. NTFS.
 - b. Describe directory structures - Create folders, Navigate directory structures.
 - c. Define Files - Creation, Extensions, Attributes, Permissions.
 - d. Demonstrate how to verify of hardware compatibility and minimum requirements.
 - e. Outline installation methods - Boot media such as CD, floppy or USB, Network installation, Install from image, Recover CD, Factory recovery partition.
 - f. Illustrate operating system installation options - File system type, Network configuration, Repair install.
 - g. Describe disk preparation order - Format drive, Partition, Start installation.
 - h. Use Device Manager - Verify , install and update devices drivers, Driver signing.
 - i. Explain User data migration – User State Migration Tool (USMT).
 - j. Characterize virtual memory.
 - k. Configure power management - Suspend, Wake on LAN, Sleep timers, Hibernate, Standby.
 - l. Demonstrate safe removal of peripherals.

27. MBR (Master Boot Record)
28. MPA (Microsoft Product Activation)
29. NTFS
30. NTFS Permissions
31. Patch
32. Prompt
33. Quick Launch Menu
34. Service Pack
35. SetupLog.txt
36. Shell
37. UAC
38. Unattended Install
39. UNIX
40. Upgrade Advisor
41. Upgrade Installation
42. Virus
43. Virus Definition or Data File
44. VxD
45. Warm Boot
46. Wildcard
47. WINS
48. Word

- Objective 4
Explain the basics of boot sequences, methods, startup utilities, and errors
 - a. Illustrate how to set Disk boot order / device priority - Types of boot devices (disk, network, USB, other).
 - b. Describe Boot options - Safe mode, Boot to restore point, Recovery options.
 - c. Characterize Boot errors - Invalid boot disk, Inaccessible boot drive, Missing NTLDR.

U6: Multimedia and accessories

(Week 14, 3 Weeks) 

UT: CTE: Information Technology, UT: Grades 9-12, Computer Maintenance & Repair (A+) Standard 1
Students will identify, classify, install, configure and maintain, detect problems with, troubleshoot, repair or replace Personal Computer hardware components.

- Objective 7
Recognize different display devices and their characteristics, install, configure and maintain display devices
 - a. Differentiate display types - projector, CRT and LCD.
 - b. Describe LCD display characteristics - Resolution (e.g. XGA, SXGA+, UXGA, WUXGA), Contrast ratio, Native resolution.
 - c. Recognize display connector types - VGA, HDMI, S-Video, Component / RGB, DVI pin compatibility.
 - d. Configure display settings - Refresh rate, Resolution, Multi-monitor, Degauss.
- Objective 8
Install, configure and troubleshoot peripherals and input devices
 - a. List important mouse support issues.
 - b. Outline important keyboard

- Match peripherals selection and identification matching user requirements
- Port identification and peripheral matching
- Identify video requirements that match user requirements that include compatibility from the output surface all the way to the video card including user management device
- Methods of capturing video
- Video compression and formatting
- Methods of capturing sound
- Sound formats, output and management

- Install all necessary hardware for a multimedia system which includes both audio and video capture compression and output
- Select necessary components in order to successfully capture both audio and video

1. Analog
2. Analog Video
3. Burn
4. CCFL
5. CD-I
6. Centronics Connector
7. DirectX
8. Dolby Digital
9. EAX
10. LED (Light Emitting Diode)
11. Luminescence
12. LUN's
13. LVD (Low Voltage Differential)
14. Mini Audio Connector
15. Mini-DINN
16. Mini-PCI
17. MMX (Multimedia Extensions)
18. Multiplexer
19. NVIDIA
20. Phosphor
21. Photosensitive Drum
22. PIO Mode
23. QVGA
24. Super I/O Chip
25. SXGA
26. TFT
27. Triad
28. UART
29. Upstream
30. VGA
31. VIS
32. WQXGA
33. WSXGA

- support issues.
- c. Describe Bar code reader.
- d. Recognize multimedia equipment (e.g. web and digital cameras, MIDI, microphones).
- e. Define biometric devices.
- f. Describe a touch screen.
- g. Characterize a KVM switch.

U7: Networks and

the Internet

(Week 17, 3 Weeks)



UT: CTE: Information Technology, UT: Grades 9-12, Computer Maintenance & Repair (A+) Standard 4
Students will understand and use Networking concepts.

- Objective 1
Summarize networking fundamentals, devices and protocols, recognize improper configurations
 - a. Illustrate the basics of configuring IP addressing and TCP/IP properties (DHCP, DNS, Gateway).
 - b. Explain bandwidth and latency they relate to networking.
 - c. Tell how to use status indicators.
 - d. Describe networking protocols (TCP/IP, NETBIOS).
 - e. Contrast full-duplex, half-duplex.
 - f. Compare workgroups and domains.
 - g. List common port numbers: HTTP, FTP, POP, SMTP, TELNET, HTTPS.
 - h. Compare and contrast LANs / WANs.
 - i. Define a Hub, switch and router.
 - j. Clarify the concept of Virtual Private Networks (VPN).
 - k. Name basics IP address class identifications.
- Objective 2
Categorize network cables and connectors and their implementations
 - a. Describe network cables -

- Summarize networking fundamentals, devices and protocols, recognize improper configurations
- Categorize network cables and connectors and their implementations
- Compare and contrast the different network types
- Understand causes of network connectivity issues and be able to troubleshoot using appropriate tools
- Explain the basic principles of security concepts and technologies.

- Install and configure a small office home office (SOHO) network
- Define and implement security infrastructure

1. 802.11b
2. ADSL
3. AIX
4. ANSI
5. ANSI Character Set
6. ARP
7. Bandwidth
8. Baud
9. Bridge
10. Broadband
11. Broadcast
12. Browser
13. Bus Topology
14. Cable Modem
15. Cable Tester
16. CAT 6
17. CAT3
18. Cat5e
19. Category 4 UTP
20. Category 5 UTP
21. Client
22. Collision
23. Collision Domain
24. CRC (Cyclic Redundancy Check)
25. Crossover Cable
26. Crossover Port
27. DB Connector
28. DB-15 Connector
29. DB-25 Connector
30. Dedicated Server
31. Default Gateway
32. Domain
33. Domain Controller
34. DSL (Digital Subscriber Line)
35. Layer
36. Layer 1
37. Layer 3 Switch
38. Layer 5
39. Layer 7
40. LocalHost
41. Logical Address

- Plenum / PVC, UTP (e.g. CAT3, CAT5 / 5e, CAT6), STP, Fiber, Coaxial cable.
- b. Identify network connectors - RJ45, RJ11.
- Objective 3
 - Compare and contrast the different network types
 - a. Describe common types of broadband - DSL, Cable, Satellite, Fiber.
 - b. Tell where dial-up networking is appropriate.
 - c. Characterize Wireless network concepts - All 802.11 types, WEP, WPA, SSID, MAC filtering, DHCP settings
 - d. Explain the strengths and limitations of Bluetooth networking.
 - e. Point out the benefits and drawbacks of Cellular networking.
- Objective 4
 - Troubleshoot client-side connectivity issues using appropriate tools
 - a. Troubleshoot and configure TCP/IP settings - Gateway, Subnet mask, DNS, DHCP (dynamic vs.static), NAT (private and public).
 - b. Characterize concepts of TCP/IP - Loopback addresses, Automatic IP addressing.
 - c. Describe e-Mail protocol settings - SMTP, IMAP, POP.
 - d. Explain FTP settings - Ports, IP addresses, Exceptions, Programs.
 - e. Define proxy settings - Ports, IP addresses, Exceptions, Programs
 - f. Use and interpret results of networking tools - Ping, Tracert, Nslookup, Netstat, Net use, Net /?, Ipconfig, telnet, SSH.
 - g. Explain secure connection protocols - SSH, HTTPS
 - h. Manage firewall settings - Open and closed ports, Program filters
- Objective 5
 - 42. Loopback Address
 - 43. MAC
 - 44. Modem (Moduleator/Demodulator)
 - 45. NetBEUI
 - 46. Newsgroup
 - 47. NIC
 - 48. Node
 - 49. Noise
 - 50. Packet
 - 51. Path
 - 52. Peer-to-peer Network
 - 53. Physical Address
 - 54. Ping
 - 55. Port or Port Number
 - 56. Port Replicator
 - 57. POTS
 - 58. PPTP
 - 59. Promiscuous Mode
 - 60. Protocol
 - 61. Proxy Server
 - 62. PSTN
 - 63. SMTP
 - 64. STP
 - 65. Subnet Mask
 - 66. Switch
 - 67. TC/IP Services
 - 68. TCP
 - 69. TCP/IP
 - 70. Terminal
 - 71. Terminal Emulation
 - 72. Termination
 - 73. Terminator
 - 74. TIA/EIA
 - 75. TRACERT
 - 76. URL
 - 77. UTP
 - 78. WWW

Install and configure a small office home office (SOHO) network

- a. Explain the use of different network connection types - Dial-up, Broadband, Wireless, Routers / Access Points, LAN (10/100/1000BaseT, Speeds), Bluetooth (1.0 vs. 2.0), Cellular, Basic VoIP (consumer applications)
- b. List the basic concepts of hardware and software firewall configuration - Port assignment / setting up rules (exceptions), Port forwarding / port triggering
- c. Perform a physical network installation - Wireless router

Standard 5

Students will demonstrate an understanding common security practices.

- Objective 1
Explain the basic principles of security concepts and technologies.
 - a. Explain encryption technologies of networking.
 - b. Tell the steps of data wiping / hard drive destruction / hard drive recycling.
 - c. Describe a software firewall - Port security, Exceptions.
 - d. List common authentication technologies - User name, Password, Biometrics, Smart cards.
 - e. Basics of data sensitivity and data security - Compliance, Classifications, Social engineering
- Objective 2
Summarize the following security features
 - a. Implement wireless encryption - WEPx and WPAX, Client configuration (SSID).
 - b. Describe malicious software protection - Viruses, Trojans, Worms, Spam, Spyware,

- Adware, Grayware.
- c. Tell how to implement BIOS Security - Drive lock, Passwords, Intrusion detection, TPM.
- d. Practice proper password management / password complexity.
- e. Outline the steps in locking a workstation - Hardware, Operating system.
- f. Describe Biometrics - Fingerprint scanner.

- Objective 3
Implement security and troubleshoot common issues
 - a. Secure the Operating systems - Local users and groups: Administrator, Power Users, Guest, Users, Vista User Access Control (UAC),
 - b. Contrast NTFS vs. Share permissions, Shared files and folders - System files and folders, Encryption (Bitlocker, EFS), User authentication
 - c. List the steps to secure the system - BIOS security.

U8: Printers and Portables

(Week 20, 1 Week)



UT: CTE: Information Technology, UT: Grades 9-12, Computer Maintenance & Repair (A+) Standard 1
Students will identify, classify, install, configure and maintain, detect problems with, troubleshoot, repair or replace Personal Computer hardware components.

- Objective 10
Install, configure, optimize, detect problems with, troubleshoot and repair/replace laptop components and features
 - a. Characterize expansion devices - PCMCIA cards, PCI Express cards, Docking station.
 - b. Explain communication connections - Bluetooth, Infrared, Cellular WAN,

- Identify the unique differences between portable devices and their unique troubleshooting issues.
- Contrast the different troubleshooting processes used when solving issues on a portable device as apposed to desktop system
- Compare and contrast printer types, benefits and shortfalls
- Assess different wireless technologies matching them with the myriad of peripherals

- Assess a portable device for any issues and troubleshoot solving problems identified.
- Recognize portable device peripherals and describe their intended purposes and value.
- Distinguish a customers printing requirements and recommend a printer that meets customers requirements

1. Card
2. Dot Pitch
3. Dot-Matrix-Printer
4. Downstrem
5. LPT Port
6. Notification Area
7. PCL
8. Platen
9. Plug
10. Point to Point Protocol
11. Queue
12. Trackball
13. Transfer Corona
14. Voice Coil Motor
15. xD-Picture Card

Ethernet, Modem.

c. Describe power and electrical input devices - Auto-switching, Fixed input power supplies, Batteries.

d. Explain where specialized input devices are used - Stylus / digitizer, Function keys, Point devices (e.g. touch pad, point stick / track point).

- Objective 11
Install, configure and troubleshoot printers
 - a. Differentiate between printer types - Laser, Inkjet, Thermal, Impact.
 - b. Contrast local vs. network printers.
 - c. Define and explain how to install printer drivers (compatibility).
 - d. Summarize consumables for printers.

Standard 2

Students will demonstrate

Troubleshooting, Repair and Maintenance Skills.

- Objective 3
Given a scenario, determine the troubleshooting methods and tools for printers.
 - a. Manage print jobs.
 - b. Use the Printers and Faxes spooler to troubleshoot printing issues.
 - c. Manage printer properties and settings.
 - d. Print a test page from the OS and from the printer.
- Objective 4
Given a scenario, explain and interpret common laptop issues and determine the appropriate basic troubleshooting method.
 - a. Describe ordinary issues with laptops - Power conditions, Video, Keyboard, Pointer, Stylus, Wireless card issues.

b. Explain common methods in troubleshooting laptops - Verify power (e.g. LEDs, swap AC adapter), Remove unneeded peripherals, Plug in external monitor, Toggle Fn keys or hardware switches, Check LCD cutoff switch, Verify backlight functionality and pixilation, Check switch for built-in WIFI antennas or external antennas.

