

Computer Repair
Course Number: 1250
Sean L. Shelton

I. Major Components of a PC (20 Hours)

- Students will identify the names, purpose, and characteristic of the major components of the PC with 80% accuracy evidenced by both a written and oral examination.
- Students will recognize the major components of a PC by sight or definition in a supervised classroom environment.
- Students will identify the names, purposes, and performance characteristics of serial, parallel, USB, FireWire, DB, RJ, DIN, mini-DIN, and Centronics peripheral ports with 80% accuracy evidenced by written exam that includes diagrams.
- Students will recognize ports, cabling, and connectors by sight in a supervised classroom environment.
- Students will identify various safety measures and procedures, and when and how to use them with 80% accuracy as evidenced by a written examination.

II. THE INTERNET (20 Hours)

- Students will identify common technologies available for establishing Internet connections and their characteristics
- Students will recognize common operational and usability problems such as viruses and determine how to resolve them
- Students will identify the basic Internet protocols and terminologies.
- Students will identify procedures for establish Internet connectivity.
- In a given scenario, configure the operating system to connect to and use internet resources

III. Microprocessors (10 hours)

- Students will identify the names, purpose, and characteristics of microprocessors with 80% accuracy evidence by a written examination.
- Students will recognize microprocessors by sight or definition
- Students will perform basic procedures for adding and removing microprocessors for desktop systems in a supervised classroom environment..

- Given a replacement scenario, students will choose the appropriate sequences for installing microprocessors in a supervised classroom environment.
- Students will identify procedures to optimize PC operations in specific situations with 80% accuracy as evidenced by a written examination.
- Students will recognize the effects of cooling systems: liquid, air, heat sink, and thermal compounds as they relate to microprocessors in a supervised classroom environment.
- Students will recognize common problems associated with each microprocessor and their symptoms, identifying steps to isolate and troubleshoot the problems with 80% accuracy as evidenced by a written examination.

IV. RAM (10 Hours)

- Students will identify the names, purpose, and characteristics of RAM and recognize these modules by sight or definition with 80% accuracy as evidenced by a written examination.
- Students will identify basic procedures for adding and removing RAM for desktop systems in a supervised classroom environment.
- Given a RAM replacement scenario, students will choose the appropriate sequences with 80% accuracy as evidenced by a written examination.
- Students will identify basic procedures for adding and removing RAM for portable systems with 80% accuracy as evidenced by a written examination.
- Students will determine the issues that must be considered when upgrading a PC and establish when and how to upgrade RAM. For example, selection of the appropriate types of RAM for a system or motherboard with 80% accuracy as evidenced by a written examination.
- Students will recognize common problems associated with each RAM and their symptoms, and identify steps to isolate and troubleshoot the problems with 80% accuracy as evidenced by a written examination.
- Students will, given a problem situation, interpret the symptoms and infer the most likely cause with 80% accuracy as evidenced by a written examination.
- Students will identify the types of RAM, form factors, and operational characteristics and determine RAM banking and speed requirements under given scenarios with 80% accuracy as evidenced by a written examination.

V. BIOS and CMOS (5 hours)

- Students will determine the BIOS and CMOS issues that must be considered when upgrading a PC. (For example, system/firmware limitations and BIOS upgrade) with 80% accuracy as evidenced by a written examination.
- Students will recognize common problems associated with the bios or cmos and their symptoms, and identify steps to isolate and troubleshoot the problems with 80% accuracy as evidenced by a written examination.
- Students will identify the purpose of CMOS memory, what it contains, and how and when to change its parameters.

VI. Expansion Bus (10 hours)

- Students will identify the names, purpose, and characteristics, of Expansion Bus system modules. (ISA, PCI) with 80% accuracy as evidenced by a written examination.
- Students will recognize Expansion Bus modules by sight or definition with 80% accuracy as evidenced by a written examination.
- Students will classify basic procedures for adding and removing ISA, PCI, with 80% accuracy as evidenced by a hands on and written examination.
- Students will identify typical IRQs, DMAs, and I/O addresses, and procedures for altering these settings when installing and configuring devices with 80% accuracy as evidenced by a written examination.
- Students will choose the appropriate installation or configuration steps in a give scenario and determine the issues that must be considered when upgrading a PC.

VII. Motherboards (10 Hours)

- Students will identify the names, purpose, and characteristics of motherboard system modules with 80% accuracy as evidenced by a written examination.
- Students will identify basic procedures for adding and removing Motherboard FRM for desktop systems with 80% accuracy as evidenced by a written examination.
- Given a replacement scenario, students will choose the appropriate sequences and determine the issues that must be considered when upgrading a PC with 80% accuracy as evidenced by a written examination.
- Students will determine when and how to upgrade system components, in conjunction with a motherboard.
- Students will recognize common problems associated with each module and their symptoms, and identify steps to isolate and troubleshoot the problems.
- Given a problem situation, interpret the symptoms and infer the most likely cause

- Students will identify the most popular type of motherboard, their components, and their bus structures with 80% accuracy as evidenced by a written examination.

VIII. Power Supplies (5 Hours)

- Students will identify the names, purpose, and characteristics of power supplies and students will recognize Power supply modules by sight or definition with 80% accuracy as evidenced by a written examination.
- Students will identify basic procedures for adding and removing Power Supplies and given a replacement scenario, choose the appropriate sequences.
- Students will identify proper procedures for installing and configuring common peripheral devices such as uninterruptible power supplies and surge suppressors and determine the issues that must be considered when upgrading a PC as it relates to power supplies.
- Students will recognize common problems associated with power supplies and cooling fans and their symptoms in a supervised classroom environment.

IX. Floppy Drives and USB Flash Memory Drives (3 hours)

- Students will identify the names, purpose, and characteristics of floppy drives and USB flash memory drives with 80% accuracy as evidenced by a written examination.
- Students will recognize floppy drives and USB flash memory drives by sight or definition with 80% accuracy as evidenced by a written examination.
- Students will identify basic procedures for adding and removing broken floppy disk drives in a supervised classroom environment.
- Students will recognize common problems associated with each module and their symptoms and identify steps to isolate and troubleshoot the problems in a supervised classroom environment.
- Students will identify the various types of preventive maintenance measures, products and procedures and when and how to use them 80% accuracy as evidenced by a written examination.

X. Hard Drive Technologies (10 hours)

- Students will identify basic procedures for adding and removing Hard Drives 80% accuracy as evidenced by a written examination.
- Students will identify proper procedures for installing and configuring common IDE devices in a supervised classroom environment.

- Students will choose the appropriate installation or configuration in given scenarios and recognize the associated cables in a supervised classroom environment.
- Students will recognize common problems associated with hard drives and their symptoms and identify steps to isolate and troubleshoot the problems with 80% accuracy as evidenced by a written examination.

XI. Implementing Hard Drives (5 hours)

- Students will demonstrate the ability to use command-line functions and utilities (format and fdisk) to manage the operating system, including the proper syntax and switches in a supervised classroom environment.
- Students will identify basic concepts and procedures for creating, viewing, and managing disks, directories, and files.
- Students will identify the major operating system utilities, their purpose, location, and available switches.

XII. CD and DVD Media (5 hours)

- Students will identify the names, purpose, and characteristics of CD/CD-RW and DVD/DVD-RW drives and recognize these modules by sight or definition with 80% accuracy as evidenced by a written examination.
- Students will identify basic procedures for adding and removing CD/CD-RW and DVD/DVD-RW drives in a supervised classroom environment.
- Students will recognize common problems associated with CD/CD-RW and DVD/DVD-RW drives and their symptoms, and identify steps to isolate and troubleshoot the problem 80% accuracy as evidenced by a written examination.

XIII. VIDEO (15 Hours)

- Students will identify basic procedures for adding and removing Video cards and display devices and identify proper procedures for installing and configuring monitors with 80% accuracy as evidenced by a written examination.
- Students will choose the appropriate installation or configurations sequences in given scenarios and identify procedures to optimize video cards in a supervised classroom environment.
- Students will recognize common problems associated with monitors and video cards and their symptoms and identify steps to isolate and troubleshoot the problems in a supervised classroom environment.
- Given a video or display situation, students will interpret the symptoms and infer the most likely cause.
- Students will identify the various types of preventive maintenance measures, products, and procedures, and when and how to use them with monitors.

- Students will identify various safety measure and procedures and when and how to use them
- Students will identify environmental protection measures and procedures and when and how to use them.

XIV. PRINTERS (10 Hours)

- Students will identify proper procedures for installing and configuring printers with 80% accuracy as evidenced by a written examination.
- Choose the appropriate installation and configuration sequences for printers in given scenarios
- Students will identify the purpose of CMOS, what it contains, and how to change its basic parameters to correctly configure printers
- Students will identify printer technologies, interfaces, and option/upgrades
- Students will recognize common printer problems and techniques used to resolve them
- Students will recognize common operational and usability problems related to printers and determine how to revolve them

XV. SCSI (5 Hours)

- Students will identify basic procedures for adding and removing SCSI devices
- Students will identify proper procedures for installing and configuring common SCSI devices
- Students will recognize common problems associated with SCSI devices and their symptoms
- Students will identify steps to isolate and troubleshoot the problems
- Given a problem situation, interpret the symptoms and infer the most likely cause

XVI. SOUND (10 Hours)

- Students will identify the names, purpose, and characteristics, of soundcards
- Students will recognize sound cards by sight or definition
- Students will identify basic procedures for adding and removing sound cards
- Given a replacement scenario, choose the appropriate sequences
- Students will recognize common problems associated with sound cards and speakers and their symptoms

- Students will identify steps to isolate and troubleshoot the sound card problems and interpret the most likely cause

XVII. NETWORKING (25 hours)

- Students will identify basic networking troubleshooting procedures and tools and how to elicit problem symptoms from customers.
- Students will identify the common types of networking cables, their characteristics, and connectors
- Students will identify basic networking concepts including how a network works
- Students will identify the networking capabilities of windows
- Given configuration parameters, configure the operating system to connect to the internet.

XVIII. PORTABLE PC (5 Hours)

- Students will identify basic procedures for adding and removing hardware in portable pc's
- Students will identify proper procedures for installing and configuring digital cameras and PDS
- Determine the issues that must be considered when upgrading a portable pc
- Students will recognize common problems associated with portable systems and their symptoms and identify steps to isolate and troubleshoot the problems
- Given a portable pc problem situation, interpret the symptoms and infer the most likely cause

XIX. Assessment Testing (20 Hours)

- Students will pass a series of A+ Certification Test simulations with 80% accuracy.