COMPUTER REPAIR

For

Dr. Ritz
OTED785

By

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Patrick Henry Community College
November 15, 2001

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CURRICULUM FOUNDATIONS

DEFINITON AND PILIOSOPHY
FOR COMPUTER REPAIR COURSE

The computer repair course is used to introduce and develop the computer skills required by the student to complete class work in computer repair. This introduction will give the student the basis knowledge to use multiple operating systems, identify the parts of a computer, and use logical steps in solving hardware and software problems. The aim of the curriculum is to develop basis computer hardware and software knowledge through computer related repair problems. The developed curriculum is the first step in becoming a competent computer repair technician.

RATIONALE

Computer repair is a demanding occupation that one can reap excellent benefits from. If one is willing to become A+ certified and continues to enhance one's skills he or she can enjoy a rewarding and self-fulfilling occupation. Salaries range from $20,000 to $40,000 dollars at the entry level and can escalate up to $70,000 dollars or more yearly. The rate of salary depends on the amount of training and expertise one holds. Another thing that affects salary is the area one lives in. In the metropolitan area the salaries are higher, but one should consider the cost of living, traffic, and population before choosing a metropolitan area over a rural area. There are presently many jobs waiting to be filled and opportunities for employment are increasing yearly. According to economic predictions, it will virtually be impossible to fill all the positions needed in the computer field.
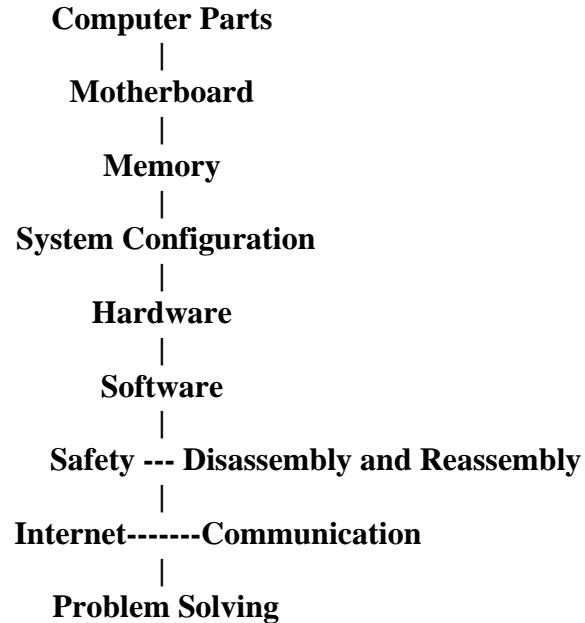
CONTENT SOURCE

The common body of knowledge is computer repair. Computer repair involves identifying computer parts, learning safety procedures, and learning the logical steps in troubleshooting a computer. Within this topic are included identifying computer terms, learning the different components of the computer, disassembling and reassembling a computer, learning safety precautions, removal and replacement of parts and logical steps in troubleshooting computer problems.

The content of this course will be derived from:
- A technician's perspective
- An instructor's perspective
- A student's perspective
- A user's perspective

CONTENT STRUCTURE

Computer Parts
|
Motherboard
|
Memory
|
System Configuration
|
Hardware
|
Software
|
Safety --- Disassembly and Reassembly
|
Internet-------Communication
|
Problem Solving

COMPUTER REPAIR COURSE AIM AND GOALS

PROGRAM AIM

The aim of the computer repair curriculum is to give students the basic computer skills needed to troubleshoot computer hardware and software problems and to prepare them for an entry level of employment in this field of computers.

PROGRAM GOALS

This curriculum will provide instructions and practice that will:

- Develop a working knowledge of computer hardware and software
- Use the logical steps in troubleshooting a computer
- Practice safety precautions
- Locate documentation for computer components
- Communicate with consumers
- Determine the causes of computer problems
- Formulate a solution to solve computer problems

CURRICULUM CONTENT
COMPUTER REPAIR

COURSE SCOPE AND SEQUENCE

UNIT ONE **Week 1: Computer Parts** • Monitor • Keyboard • Mouse	UNIT ONE **Week 2: Computer Parts** • Ports
UNIT TWO **Week 3: Motherboard** • Microprocessors • Expansion Slots • Chipset • Jumpers	UNIT THREE **Week 4: Memory** • Simms/Dimms • ROM/RAM • Memory removal/installation
UNIT FOUR **Week 5: System Configuration** • Setup Program • Interrupts I/O (Input/Output) Addresses • DMA (Direct Memory Access)	UNIT FIVE **Week 6: Peripherals** • Hard Drive • CD_ROM

## UNIT FIVE **Week 7: Peripherals** • Modem • Floppy	## UNIT SIX **Week 8: Software** • DOS Commands
## UNIT SIX **Week 9: Software** • Windows Installation and configuring	## UNIT SEVEN **Week 10: Safety Procedures and Disassembly/Reassembly** • Anti-Static Wrist Strip • Anti-Static Work Station • Fire Extinguisher
## UNIT SEVEN **Week 11: Safety Procedures and Disassembly/Reassembly** • Removal of Components • Labeling Components • Reassembling Components	## UNIT EIGHT **Week 12: Internet and Communication Skills** • Access Computer information via Internet • Explain the information
## UNIT NINE **Week 13: Problem Solving** • Differentiate between hardware and software problems	## UNIT NINE **Week 14: Problem Solving** • Isolate Problem • Create a Solution
## UNIT NINE **Week 15: Problem Solving** • Test Solution • Provide Feedback	**Week 16: Final Exam**

16 Week Semester --1 hour lecture and 2 hours laboratory--- Total 3 hours

COMPUTER REPAIR

UNIT ONE--COMPUTER PARTS

Two-Weeks

UNIT GOALS:

1. Recognize the parts of a computer which makeup a computer system
2. Become familiar with the ports of a computer so that one will not connect components improperly

RATIONALE FOR UNIT:

Knowing the parts and ports of a computer system is the vital link in troubleshooting computer problems. Before one becomes a computer technician, he/she must be able to identify and understand the parts and ports of a computer. This is the first step in one quest for competency in solving computer problems.

OBJECTIVES FOR UNIT:

1. Produce a sketch of the parts of a computer system
2. Define the parts of a computer system
3. Discuss the purpose of each part of the computer system
4. Define the ports on a computer
5. Discuss the purpose of each port on a computer

UNIT ACTIVITIES

1. Draw a computer system and label the parts
2. Explain the function of each part of the computer system
3. Create a list of computer ports
4. Explain the purpose of each ports

References:
- The Complete Computer Repair Textbook by Cheryl A. Schmidt, pages 5-21
- Supporting Microcomputers Third Edition by Thomas P. Cavaiani Ph. D. and Jim Joy, A plus Certified Service Technician and Susan Lanier-Graham, A plus Certified Service Technician, pages 160-168

COMPUTER REPAIR

UNIT TWO--MOTHERBOARD

One-Week

GOALS:

1. Recognize the parts of a motherboard
2. Become familiar with the types of microprocessors

RATIONALE FOR UNIT:

The motherboard is the main circuit board and contains most of the electronic circuitry. One must become familiar with the motherboard of a computer system in order to understand what microprocessor and adapters are compatible with the computer system.

OBJECTIVES FOR UNIT:

1. Develop a knowledge of the parts of a motherboard
2. Define the types of microprocessors
3. Describe expansions
4. Describe chipset
5. Describe and configure jumpers

UNIT ACTIVITIES

1. Draw a motherboard and label the parts
2. Create a list of microprocessors
3. Draw a diagram of the expansion slots
4. Explain each expansion slots
5. Explain chipset and configure jumpers

References:
- The Complete Computer Repair Textbook by Cheryl A. Schmidt, pages 26-54
- Supporting Microcomputers Third Edition by Thomas P. Cavaiani Ph. D. and Jim Joy, A plus Certified Service Technician and Susan Lanier-Graham, A plus Certified Service Technician, pages 44-50;101-109

COMPUTER REPAIR

UNIT THREE--MEMORY

One-Week

GOALS:

1. Become familiar with memory
2. Become proficient in installing memory

RATIONALE FOR UNIT:

Memory is the key to a computer performing a request. Without memory a computer would be an expensive doorstop. Main memory is where most requests reside before they are processed. Knowing the types of memory and how memory works is crucial in solving computer problems.

OBJECTIVES FOR UNIT:

1. Explain memory
2. Acquire knowledge to remove and install memory chips
3. Explain how memory works
4. Differentiate between ROM and RAM memory

UNIT ACTIVITIES

1. Read documentation on memory and explain it
2. Explain the procedures in exchanging memory
3. Remove memory chips and reinstall them
4. Draw a diagram of memory areas
5. Explain ROM and RAM memory

References:
- The Complete Computer Repair Textbook by Cheryl A. Schmidt, pages 187-243
- Supporting MS-DOS and Microsoft Windows Third Edition by Thomas P. Cavaiani Ph. D. and Susan Lanier-Graham, A plus Certified Service Technician pages 77-87
- Supporting Microcomputers Third Edition by Thomas P. Cavaiani Ph. D. and Jim Joy, A plus Certified Service Technician and Susan Lanier-Graham, A plus Certified Service Technician, pages 79-97

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UNIT FOUR--SYSTEM CONFIGURATION

One-Week

<u>GOALS:</u>

1. Acquire knowledge of computer setup programs
2. Use setup program to solve conflicts

<u>RATIONALE FOR UNIT:</u>

Setup programs are what allow computers to startup. The setup program indicates how much memory is installed, what types of drives are installed, the startup sequence, and keeps the time and date. One must learn to use the setup program to solve startup errors and configure computers for optimum performance.

<u>OBJECTIVES FOR UNIT:</u>

1. Develop knowledge of setup programs
2. Explain setup keystrokes
3. Describe interrupts
4. Describe I/O (Input/ Output) addresses
5. Describe DMA (Direct Memory Access)

<u>UNIT ACTIVITIES</u>

1. Read documentation on setup programs and explain their functions
2. Create a list of keystrokes for entering setup programs
3. Draw a diagram of interrupts and explain their purposes
4. Draw a diagram of I/O addresses and explain their functions
5. Draw a diagram of DMA and explain their functions

References:
- The Complete Computer Repair Textbook by Cheryl A. Schmidt, pages 65-97
- Supporting Microcomputers Third Edition by Thomas P. Cavaiani Ph. D. and Jim Joy, A plus Certified Service Technician and Susan Lanier-Graham, A plus Certified Service Technician, pages 43-50

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UNIT FIVE--HARDWARE

Two-Weeks

GOALS:

1. Acquire knowledge of hardware
2. Develop an understanding of configuring hardware

RATIONALE FOR UNIT:

In order for one to solve computer problems, he/she must gain knowledge about hardware. Hardware provides the means of storing, retrieving, and sending data. Hard drives, floppy drives, CD_ROM drives, and modems are the most important hardware components to understand. One must acquire knowledge of and develop skills in configuring these components.

OBJECTIVES FOR UNIT:

1. Develop a knowledge of hardware
2. Describe the types of hardware
3. Describe the process of configuring hardware
4. Develop skills in configuring hardware

UNIT ACTIVITIES

1. Read documentation on hard drives, floppy drives, CD_ROM, and modems
2. Explain the use of all four components
3. Configure a hard drive to master and slave position
4. Configure a CD_ROM to master and slave position
5. Install a floppy drive
6. Install and configure a modem

References:
- The Complete Computer Repair Textbook by Cheryl A. Schmidt, pages 277-460
- Supporting Microcomputers Third Edition by Thomas P. Cavaiani Ph. D. and Jim Joy, A plus Certified Service Technician and Susan Lanier-Graham, A plus Certified Service Technician, pages 111-157

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UNIT SIX--SOFTWARE

Two-Weeks

<u>**GOALS:**</u>

1. Acquire knowledge of DOS (Disk Operating System) software and Windows software
2. Develop an understanding of installing and configuring software

<u>**RATIONALE FOR UNIT:**</u>

Installing and configuring operating systems is vital in solving computer problems. The main two types of operating systems used today are DOS and Windows. One should acquire knowledge of and develop skills in installing and configuring these two operating systems. Without a working knowledge of these operating systems, one will not succeed in solving computer problems.

<u>**OBJECTIVES FOR UNIT:**</u>

1. Develop a knowledge of DOS
2. Describe installation processes
3. Configure DOS
4. Develop a knowledge of Windows
5. Describe installation processes
6. Configure Windows

<u>**UNIT ACTIVITIES**</u>

1. Read documentation on DOS and Windows
2. Implement the fdisk command to partition a hard drive
3. Implement the format command to format a hard drive
4. Install DOS
5. Configure the autoexec.bat by removing the echo off text and write down what occurs when the computer is restarted
6. Configure the Config.sys by removing the buffer=10 text and write down what occurs when the computer is restarted
7. Install Windows
8. Use msconfig command to change what loads during startup

Reference:
- The Complete Computer Repair Textbook by Cheryl A. Schmidt, pages 591-632

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UNIT SEVEN-- SAFETY AND DISASSEMBLY/REASSEMBLY

Two-Weeks

GOALS:

1. Acquire knowledge about safety and disassembly and reassembly of computers
2. Become proficient in using safety techniques in disassembling and reassembling computers

RATIONALE FOR UNIT:

Safety is a key issue when working with computers. Many computers are damaged and people are injured by not using correct safety procedures when repairing computers. One should learn and implement safety at all times when working with computer. Also, for one to repair a computer, many times one must disassemble and reassemble the computer to perform the task. One should have a basic knowledge of computer disassembly and reassembly before attempting to solve internal computer problems.

OBJECTIVES FOR UNIT:

1. Explain the safety procedures when repairing a computer
2. Demonstrate the safety procedures when repairing a computer
3. Explain the steps in disassembling a computer
4. Explain the steps in reassembling a computer

UNIT ACTIVITIES

1. Read documentation on safety procedures
2. Practice the safety procedures when repairing a computer
3. Disassemble a computer
4. Create a diagram of the parts of the computer
5. Reassemble a computer
6. Power computer and make sure it operates correctly

References:
- The Complete Computer Repair Textbook by Cheryl A. Schmidt, pages 107-132
- Supporting Microcomputers Third Edition by Thomas P. Cavaiani Ph. D. and Jim Joy, A plus Certified Service Technician and Susan Lanier-Graham, A plus Certified Service Technician, pages 66-69

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UNIT EIGHT-INTERNET AND COMMUNICATION SKILLS

One-Week

<u>GOALS:</u>

1. Acquire knowledge about looking up computer documentation for the Internet and explain the contents of it.
2. Become familiar with relating information to consumers

<u>RATIONALE FOR UNIT:</u>

Successful communication with consumers is very significant in becoming a proficient computer technician. One should acquire the skills to find and explain computer documentation to consumers. As a technician, one should learn this skill as soon as possible to alleviate many misunderstanding between consumers and oneself. If one desires to gain an edge in the computer field, communication skills are the link to accomplish it.

<u>OBJECTIVES FOR UNIT</u>:

1. Acquire knowledge to search the Internet for computer documentation
2. Demonstrate research skills by obtaining information from Internet about computers
3. Summarize the information obtained
4. Explain the information to consumers in language they can understand

<u>UNIT ACTIVITIES</u>

1. Access the Internet using a web browser and explore the features of the browser
2. Research computer motherboard documentation
3. Print the documentation
4. Summarize the information
5. Provide the information to a consumer
6. Explain questions the consumer might have in language easy to understand

References:
- The Complete Computer Repair Textbook by Cheryl A. Schmidt, pages: 24, 63, 106, 132, 460, 526,

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UNIT NINE--PROBEM SOLVEING

Three-Weeks

GOALS:

1. Acquire knowledge to differentiate between hardware and software problems
2. Become familiar with isolating a problem
3. Identify a solution to the problem

RATIONALE FOR UNIT:

Problem solving is the pinnacle of this curriculum. All the other components work together to form problem-solving skills. Once the basic steps in problem solving are learned, one will continue to add to these by performing computer repairs. Without a basic knowledge in solving computer problems, one will spend many frustrating hours trying to repair computers.

OBJECTIVES FOR UNIT:

1. Explain the difference in a hardware and software problems
2. Demonstrate procedures to isolate a problem
3. Interpret computer errors messages
4. Solve computer hardware and software problems

UNIT ACTIVITIES

1. Read documentation on hardware and software problems
2. Practice steps in isolating a problem
3. Compare error message with the error message documentation
4. Develop a list of possible solutions
5. Test the solution
6. Provide feedback

References:
- The Complete Computer Repair Textbook by Cheryl A. Schmidt, 173-185
- Supporting MS-DOS and Microsoft Windows Third Edition by Thomas P. Cavaiani Ph. D. and Susan Lanier-Graham, A plus Certified Service Technician, pages 242-258
- Supporting Microcomputers Third Edition by Thomas P. Cavaiani Ph. D. and Jim Joy, A plus Certified Service Technician and Susan Lanier-Graham, A plus Certified Service Technician, pages 239-279

CURRICULUM EVAULTION

STUDENT EVALUTION--SAMPLES

This will include tests, quizzes and labs given throughout the course
After five weeks are completed a quiz and a lab will be given.
After nine weeks are completed there will be a midterm exam and lab given.
After fifteen weeks are completed there will be a lab given
The final exam will be given on week sixteen

QUIZ NUMBER ONE

<u>COMPUTER REPAIR</u>

1. The _____ chip holds start-up software that must be present in order for a computer to boot.
    A. RAM
    B. ROM BIOS
    C. Expansion
    D. DIMM

2. What chip should be installed to replace an 80486SX in order to give it math co-processing abilities?
    A. 80486DX
    B. 80487DX
    C. 80487SX
    D. 80487DX

3. _____ memory speeds up microprocessor operations and can be located inside the microprocessor and/or on the motherboard.

4. The oldest architecture that is still in computers today is _____.
    A. ISA
    B. EISA
    C. PCI
    D. MCA
    E VL-bus

5. Which of the following describes 70 new microprocessor commands that speed up 3-D graphics, image editors, speech recognition software, and video editing?
    A.   MMX
    B.   AGP
    C.   MMX2
    D.   SEPP

6.An_____is a number assigned to an adapter so that the microprocessor can prioritize between devices

7. T/F All devices must have a separate I/O addresses.

8. If a system is using cascaded interrupts and a device is assigned IRQ14, what interrupt is sent to the microprocessor?
    A. IRQ0
    B. IRQ1
    C. IRQ2
    D. IRQ9
    E. IRQ14

9. If a system is using cascaded interrupts and a device is assigned IRQ3, what interrupt is sent to the microprocessor?
    A. IRQ1
    B. IRQ2
    C. IRQ3
    D. IRQ9
    E. IRQ14

10. What is the purpose of the battery on the motherboard?

    A. To keep the information current in CMOS
    B. To keep the information current in ROM BIOS
    C. To keep the information current in RAM
    D. To keep the POST software current so it can execute during startup

11. What is the purpose of the Boot Sequence option available in most computers SETUP?

    A. Allows POST to be disabled
    B. Allows RAM testing above 1MB to be disabled
    C. Allows POST to be executed after the machine boots
    D. Allows changing where the computer looks first for the boot files

12. The _____ allows a device and the microprocessor to exchange data.

    A. IRQ
    B. DMA channel
    C. POST
    D. I/O address

13. What interrupt is normally assigned to the keyboard?

   A.   IRQ0
   B.   IRQ1
   C.   IRQ2
   D.   IRQ3

14. Which DMA channel is normally not available for use because it provides a connection to the second DMA controller?

   A.   0
   B.   1
   C.   2
   D.   4

LAB NUMBER ONE

- Enter the setup program and locate system information about hard drive, floppy drives, and memory.
- Locate and record the type of microprocessor install
- List the expansion on the motherboard
- Remove and replace memory chips
- Power on computer and check to see if it performs correctly

Each component of this lab will count for 20 point and one must complete four of the five to make a passing grade.

MIDTERM

COMPUTER REPAIR

- _____ are circuit cards that plug into an expansion slot.

- The _____ holds most of the computer's electronics, expansion slots, and memory.
     Floppy drive
     Hard drive
     Power supply
     Motherboard

- Which type of memory is volatile — the memory chips' contents are removed when power is removed from the computer?
     RAM
     ROM

- Which of the following two devices commonly mount on top of the microprocessor to cool it? (Select two answers)
    Surge protector
    Fan
    Heat sink
     Surge resistor

- Approximately one million bytes is known as a _____.

- The number of bits processed simultaneously by the microprocessor is the processor's _____.
External data path
Word size
Speed factor
SEPP

- Microprocessor speeds are rated in _____.

- T/F PCI adapters can install into a PCI or ISA expansion slot.

- _____ is a bus interface for video adapters developed from the PCI bus.

- What is another name for the microprocessor?

- What determines what keystroke is used to access SETUP?
    the manufacturer of the motherboard
    the manufacturer of the ROM BIOS
    the manufacturer of the computer
    the type of RAM installed

- T/F   If a switch is to be *enabled*, the switch is placed in the OFF position.

- An _____ is a number assigned to an adapter so that the microprocessor can prioritize between devices.

- T/F   All devices must have a separate I/O addresses.

- .If a system is using cascaded interrupts and a device is assigned IRQ14, what interrupt is sent to the microprocessor?
    IRQ0
    IRQ1
    IRQ2
    IRQ9
    IRQ14

- If a system is using cascaded interrupts and a device is assigned IRQ3, what interrupt is sent to the microprocessor?
  - IRQ1
  - IRQ2
  - IRQ3
  - IRQ9
  - IRQ14

- What is the purpose of the battery on the motherboard?
  - To keep the information current in CMOS
  - To keep the information current in ROM BIOS
  - To keep the information current in RAM
  - To keep the POST software current so it can execute during startup

- What is the purpose of the Boot Sequence option available in most computers SETUP?
  - Allows POST to be disabled
  - Allows RAM testing above 1MB to be disabled
  - Allows POST to be executed after the machine boots
  - Allows changing where the computer looks first for the boot files

- The _____ allows a device and the microprocessor to exchange data.
  - IRQ
  - DMA channel
  - POST
  - I/O address

- What interrupt is normally assigned to the keyboard?
  - IRQ0
  - IRQ1
  - IRQ2
  - IRQ3

- T/F   POST checks for hardware based on the CMOS settings and displays an error if the hardware check does not match the settings.

- Where is the battery normally located?
  - Inside the microprocessor
  - Inside the ROM BIOS
  - On the motherboard
  - Inside the hard drive

- Which of the following are ways to determine pin 1 on the *cable*? (pick all that apply)

    colored stripe on one side of the cable
    arrow etched into the cable connector
    square solder joint
    a colored arrow on one end of the cable's connector

- An _____ connects a technician to the computer so that the technician does not induce ESD into the electronic components.

- _____ is noise caused by electrical devices.

    ESD
    Standoffs
    EDD
    EMI

- T/F   A technician can cause data loss on the hard drive if the hard drive is mishandled.

- T/F   A soldering iron is a common tool used by technicians.

- AC wiring has both a _____ and a _____.
    ground, hot
    ground, return
    hot, return
    on, off

- The type of power that comes from the power supply to a front panel power switch is frequently _____.
    AC
    DC

LAB NUMBER TWO

- Configure hard drive to the master position and then to the slave position
- Install a floppy drive
- Format the hard drive
- Install Windows
- Record the amount of RAM

Each component of this lab will count for 20 point and one must complete four of the five to make a passing grade.

LAB NUMBER THREE

- Disassemble the computer using the safety procedures
- Label each components of the computer
- Reassemble the computer using the safety procedures
- Implement the problem solving techniques in troubleshooting a computer
- Access the Internet and find documentation on hard drives and explain the information obtained

Each component of this lab will count for 20 point and one must complete four of the five to make a passing grade.

FINAL EXAM

COMPUTER REPAIR

- What is a CD-ROM's x-factor?
    - o What interface the CD-ROM uses
    - o The type of CD-ROM based on its speed
    - o The number of buffers the CD-ROM uses
    - o The amount of files the CD-ROM holds

- The amount of time a CD-ROM drive takes to randomly move around the disk is its _____.
    - o mean time between failure
    - o access time
    - o seek time
    - o MSDS

- T/F   CD-ROM drives cannot be external units.

- Which of the following are the two methods for loading a CD into a CD-ROM drive?
    - o Laser insertion
    - o Tray
    - o Caddy
    - o Ejector

- When an IDE CD-ROM drive is connected along the same cable as a faster hard drive, it is important to set the CD-ROM drive to _____.
    - be terminated
    - the first drive select position
    - the second drive select position
    - the slave setting

- Pick the two hard drive types that are prevalent in computer systems today.
    - ST506
    - HPPCI
    - ESDI
    - IDE
    - RLL
    - SCSI

- What drive letter does the first hard drive in the computer normally receive?
    - A:
    - B:
    - C:
    - D:

- What is the command used to partition a hard drive?
    - DEBUG
    - FDISK
    - PART
    - PARTITN
    - FORMAT

- What is the command used to high-level format a hard drive?
    - DEBUG
    - FDISK
    - PART
    - PARTITN
    - FORMAT

- The smallest amount of storage space for one file on a hard drive is a _____.
    - Track
    - Cylinder
    - Sector
    - Cluster

- Which of the following are possible replacement items if a problem occurs with the floppy drive system? (Pick all that apply)
    - Floppy drive
    - Disk
    - Cable
    - Controlling circuits

- What drive letter does the first floppy drive in the computer receive?
    - A:
    - B:
    - C:
    - D:

- T/F   1.2MB disks should not be written to using a 360KB drive.

- The smallest amount of space for one data file is stored in a _____.

- The smallest amount of storage space on a floppy disk is a _____.
    - Track
    - Cylinder
    - Sector
    - Cluster

- Why is expanded memory not used with applications today?
    - It is too hard to set up the CONFIG.SYS
    - Not enough vendors support it
    - It is in direct conflict with Extended memory
    - It is too slow

- Which of the following POST error codes indicate a memory problem?
    - 101
    - 201
    - 301
    - 601

- Windows 95 automatically has access to and uses which two of the following memory areas?
    - Conventional memory
    - Expanded memory
    - Extended memory
    - Reserved Area

- What is the purpose of parity?
    - Increases access time
    - Increases access time accuracy
    - Checks data accuracy
    - Creates a POST error code

- Which of the following helps determine if a problem is hardware or software?
  (Pick all that apply)
    - o Listening to the computer's initialization beeps
    - o Seeing if the problem occurs only in one application
    - o Looking up any error codes that appear
    - o Seeing if the problem occurs with only one device

- Why is re-creating the problem so important to solving a computer problem?
  (Pick all that apply)
    - o Because it puts the burden of proof back to the user
    - o Because frequently the user is doing something wrong that is not actually a computer problem
    - o Because the user may not be describing the problem correctly
    - o So you can see for yourself the symptoms of the problem

- The audio beeps heard during the boot-up process are caused by _____.
    - o the RAM
    - o the microprocessor
    - o the BIOS
    - o CMOS

- T/F   When troubleshooting a computer problem, check the easy stuff first.

- What is the best source for looking up a particular POST error code?
    - o the documentation for the AUTOEXEC.BAT and CONFIG.SYS files
    - o the operating system manual
    - o the hard drive manual
    - o the BIOS documentation

- The output from the power supply to the computer's devices is _____ power.
    - o AC
    - o DC

- The power going into the power supply is _____ power.

- The two types of power connectors are _____ and _____.
    - o Return
    - o Molex
    - o Keyed
    - o Berg

- Power supplies are rated in _____.
    - o amps
    - o picoseconds
    - o watts
    - o milliseconds

Survey for document validation:

107 Parkway Drive
Martinsville, Virginia 24112

Dear Dr. Whitley:

The need for computer repair has increased significantly in the past few months. I have recently developed a curriculum for computer repair. It is my hope that the curriculum provides the mechanism for one to become proficient in solving computer problems. Your critique of the material will assist with the development of this program to address our concerns and ensure the effectiveness of solving computer problems. Upon completion of the following questions, please mail the form to the above address.

Your time and cooperation are greatly appreciated. Please feel to contact me at (540) 656-0220

Sincerely,

Frank B. Tatum

CURRICULUM SURVEY

1. Does the definition of the program content encompass all required aspects of the subject area?

2. Does the rationale provide solid evidence of the basis of the program?

3. Is the content source applicable to the subject material?

4. Is the content structure precise and appropriately interrelated with the content, the program goals, and the unit specifications?

5. Are there any units that do not meet the goals of the curriculum?

6. Do the learning activities achieve the aims, goals, and objectives of the curriculum?

7. Will the sample tests provide adequate evaluation?

8. What do you feel will strengthen the program?

Additional comments: