

COMPUTER TECHNICIAN (INTRODUCTION) (120 Hours)

Course No.: 79-30-65

COMPETENCY CHECKLIST

Student Name _____

Teacher Name _____ School Site _____

Start Date _____ Completion Date _____ Certificate Date _____

Teacher Signature _____ Student Signature _____

(Signatures verify completion of course competencies)

A. ORIENTATION AND SAFETY (3 hrs)

- _____ 1. Qualifications/prerequisites for trade
- _____ 2. Working conditions and opportunities
- _____ 3. CompTIA's Certification Exams
- _____ 4. Emergency procedures
- _____ 5. Classroom "shop" policies and procedures
- _____ 6. Pass designated safety test

B. INTRODUCTION TO HARDWARE (3 hrs)

- _____ 1. Identify parts of microcomputer
- _____ 2. Explain hardware and software
- _____ 3. Define FRU
- _____ 4. Define firmware
- _____ 5. How to identify different types of ports
- _____ 6. Identify different types of connectors
- _____ 7. Identify types of expansion slots/busses
- _____ 8. Identify types of hard drives and controllers
- _____ 9. Identify types of ribbons and cables
- _____ 10. Define RAM
- _____ 11. Define ROM
- _____ 12. Difference in volatile/non-volatile memory
- _____ 13. Explain primary and secondary storage
- _____ 14. Define Central Processing Unit
- _____ 15. Define Peripheral
- _____ 16. Dismantle computer
- _____ 17. Reassemble computer
- _____ 18. Pass Hardware Identification exam

C. COMPUTER MATH (2 hrs)

- _____ 1. Powers of ten and decimal number system
- _____ 2. Metric/engineering prefixes used in comps
- _____ 3. Binary number system
- _____ 4. Conversion of decimals to binary numbers
- _____ 5. Conversion of binary numbers to decimals
- _____ 6. Hexadecimal numbers

- _____ 7. Conversion of decimals to hexadecimals
- _____ 8. Conversion of hexadecimals to decimals
- _____ 9. Conversion of hexadecimals to binary #s
- _____ 10. Conversion of binary #s to hexadecimals
- _____ 11. ASCII Code
- _____ 12. Pass written exam with 80% or higher score

D. ELECTRICITY AND POWER (5 hrs)

- _____ 1. Fundamental laws of repulsion and attraction
- _____ 2. Ohm's Law
- _____ 3. Explain Series Circuits
- _____ 4. Explain Parallel Circuits
- _____ 5. Explain Combination Circuits
- _____ 6. Demo basic soldering technique
- _____ 7. Demo use of digital thermometer
- _____ 8. Power conditioners/uninterruptible power
- _____ 9. Use of various power supplies
- _____ 10. Surge protectors and power strips
- _____ 11. How to measure voltages on power supply
- _____ 12. How to measure voltages to motherboard
- _____ 13. Measure voltages of keyboard connector
- _____ 14. Describe preventative maintenance and ESD
- _____ 15. Pass written exam

E. INTRODUCTION TO DOS 6.2x (10 hrs)

- _____ 1. Hardware, software and operating system
- _____ 2. Relationship of operating system & the BIOS
- _____ 3. How DOS organizes a disk
- _____ 4. Define track
- _____ 5. Define sector
- _____ 6. Define cylinder
- _____ 7. Define cluster
- _____ 8. Describe File Allocation Table & Boot Record
- _____ 9. Explain hierarchical structure of DOS
- _____ 10. Explain POST and BOOT sequence

- ___ 11. Describe POST numerical error codes
- ___ 12. Describe POST audible error codes
- ___ 13. 10.SYS, MSDOS.SYS & COMMAND.COM files
- ___ 14. Demo use of beginning DOS commands
- ___ 15. Define internal and external commands
- ___ 16. Describe phantom directories
- ___ 17. Pass written Introduction to DOS exam

F. THE SYSTEMBOARD (3 hrs)

- ___ 1. Explain the system bus
- ___ 2. Identify types of expansion slots
- ___ 3. Identify SIMM/DIMM slots
- ___ 4. Identify cache memory
- ___ 5. Identify Pipeline Burst slot
- ___ 6. Demo how to set jumpers/switches
- ___ 7. Explain the Pin One Rule
- ___ 8. Identify the BIOS chip
- ___ 9. System clock versus real time clock
- ___ 10. Pass written Systemboard exam

G. MICROPROCESSORS (3 hrs)

- ___ 1. Define Microprocessor
- ___ 2. Define Cache
- ___ 3. Explain Real Mode
- ___ 4. Explain Protected Mode
- ___ 5. Explain Virtual Real Mode
- ___ 6. Describe CISC technology
- ___ 7. Describe RISC technology
- ___ 8. Pass written Microprocessor exam

H. HARD DRIVES (10 hrs)

- ___ 1. Describe hard drive subsystem
- ___ 2. Explain drive capacities
- ___ 3. Explain translation
- ___ 4. Explain write precompensation
- ___ 5. Describe physical drives and logical drives
- ___ 6. Define landing zone
- ___ 7. 3 dimensional and linear addressing schemes
- ___ 8. Describe Logical Block Addressing
- ___ 9. Describe fragmentation
- ___ 10. Describe cross-linked and lost clusters
- ___ 11. Describe disk compression
- ___ 12. Describe disk caching
- ___ 13. Describe data transfer rates
- ___ 14. Describe RLL/MFM/ESDI technologies
- ___ 15. Describe IDE/EIDE technologies
- ___ 16. Describe ATA and ATA-e
- ___ 17. Describe ATAPI
- ___ 18. Describe SCSI technology
- ___ 19. Describe viruses
- ___ 20. Pass written Hard Drives exam

I. INSTALLING HARD DRIVES (5 hrs)

- ___ 1. Describe designation of master and slave
- ___ 2. Describe jumper settings
- ___ 3. Demo physical installation
- ___ 4. Demo CMOS setup
- ___ 5. Describe low level/physical format
- ___ 6. Demo partitioning
- ___ 7. Demo high-level/logical format
- ___ 8. Demo setup of master and slave
- ___ 9. Describe use of multiple operating systems
- ___ 10. Demo troubleshooting guidelines
- ___ 11. Describe preventative maintenance
- ___ 12. Proper preparation/installation of hard drive

J. CONFIGURATION (3 hrs)

- ___ 1. Define resources
- ___ 2. Describe IRQs and interrupts
- ___ 3. Describe DMAs
- ___ 4. Describe Bus Mastering
- ___ 5. Describe I/O Addresses
- ___ 6. Describe RAM/ROM Addresses
- ___ 7. Describe conflicts and how to resolve them
- ___ 8. Describe Plug and Play and how it works
- ___ 9. Pass written Configuration exam

K. MEMORY (3 hrs)

- ___ 1. Define Dynamic RAM
- ___ 2. Define Static RAM
- ___ 3. Describe caching memory
- ___ 4. Describe memory speeds
- ___ 5. Describe memory parity
- ___ 6. Describe EDO and FPM memory
- ___ 7. Describe flash ROM/EEPROM
- ___ 8. Define Synchronous DRAM
- ___ 9. Synchronous and Asynchronous SRAM
- ___ 10. Define Burst RAM
- ___ 11. Describe Shadow RAM
- ___ 12. Describe BIOS NVRAM
- ___ 13. Describe RAM drives
- ___ 14. Pass written Memory exam

L. MONITORS (2 hrs)

- ___ 1. Define pixel
- ___ 2. Define raster
- ___ 3. Define bitmap
- ___ 4. Define font
- ___ 5. Define typeface
- ___ 6. Define bitmapped font
- ___ 7. Define vector/outline font
- ___ 8. Difference between font and typeface
- ___ 9. Describe scalable fonts

- ___ 10. Describe True Type fonts
- ___ 11. Define resolution in monitors
- ___ 12. Describe refresh rates
- ___ 13. Interlaced and non-interlaced monitors
- ___ 14. Describe dot pitch
- ___ 15. Explain green monitors
- ___ 16. Describe upgrading VRAM
- ___ 17. Resolutions of various video adapters
- ___ 18. Pass written Monitors and Fonts exam

M. MULTIMEDIA/PERIPHERALS (10 hrs)

- ___ 1. Demo installation of FDD
- ___ 2. Demo installation of CD-ROMs
- ___ 3. Demo installation of sound cards
- ___ 4. Describe resolution in sound cards
- ___ 5. Demo installation of scanners
- ___ 6. Demo installation of other peripherals

N. MODEMS (5 hrs)

- ___ 1. Describe communications layers
- ___ 2. Explain the UART chips
- ___ 3. Define Modulate and Demodulate
- ___ 4. Describe RS232c standard
- ___ 5. Describe modem speeds
- ___ 6. Describe handshaking
- ___ 7. Demo installing a modem
- ___ 8. Demo configuring a modem
- ___ 9. Describe the Hayes AT Command Set
- ___ 10. Pass written exam and demo configuration

O. WINDOWS 9x (15 hrs)

- ___ 1. Keystrokes to move in Windows w/o mouse
- ___ 2. Right clicking and alternate clicking
- ___ 3. Define shortcuts
- ___ 4. Define applet
- ___ 5. Demo use of folders
- ___ 6. Demo use of long file names
- ___ 7. Describe the desktop
- ___ 8. Demo customizing the desktop
- ___ 9. Demo how to manage files with Explorer
- ___ 10. Describe the Start button
- ___ 11. Describe the Taskbar
- ___ 12. Describe the Control Panel Applets
- ___ 13. Describe My Computer icon and its contents
- ___ 14. Demo use of The Print Manager
- ___ 15. Demo creating a dial-up connection
- ___ 16. Adding/removing components after install
- ___ 17. Demo how to exit Windows properly
- ___ 18. Pass written exam and demo skills

P. SUPPORTING WINDOWS 9x (3 hrs)

- ___ 1. Describe minimum hardware requirements

- ___ 2. Recommended hardware requirements
- ___ 3. Optimal hardware requirements
- ___ 4. Demo installation of Windows 95
- ___ 5. Demo installation of Windows 98
- ___ 6. Full versus upgrade versions of Windows
- ___ 7. Demo installation for dual booting
- ___ 8. Diskette vs. CD-ROM editions of Win 95
- ___ 9. Differences in Windows A, B and C editions
- ___ 10. Describe CAB files
- ___ 11. Demo copying CABs to hard drive to run setup
- ___ 12. Describe custom installations
- ___ 13. Problems that may arise during installation
- ___ 14. Describe USER.EXE file
- ___ 15. Explain PIFs
- ___ 16. Explain property sheets
- ___ 17. Demo ability to support Windows 9x system

Q. THE INTERNET (5 hrs)

- ___ 1. Define internet
- ___ 2. Define intranet
- ___ 3. Describe the WWW or internet
- ___ 4. Define browser
- ___ 5. Define ISP
- ___ 6. Define IP address
- ___ 7. Define URL
- ___ 8. Describe TCP/IP
- ___ 9. Demo connecting internet using Win 3.1x
- ___ 10. Demo connecting internet using Win 9x
- ___ 11. Demo uploading drives from the internet
- ___ 12. Demo downloading docs from the internet
- ___ 13. Use of internet to keep up w/technology
- ___ 14. Internet as resource for reference material
- ___ 15. Pass written Internet exam

R. TROUBLESHOOTING SKILLS (25 hrs)

- ___ 1. Importance of backing up a system
- ___ 2. How to approach problem logically
- ___ 3. How to approach problem systematically
- ___ 4. Importance of researching
- ___ 5. Importance of taking to the user
- ___ 6. How to talk to use to acquire information
- ___ 7. Role-play listening/providing feedback
- ___ 8. Copyright laws and piracy
- ___ 9. Define intermittent problems
- ___ 10. Importance of problem isolation
- ___ 11. Various diagnostic software and their uses
- ___ 12. Demo use of diagnostic software
- ___ 13. Define steps of problem determination
- ___ 14. Define steps of problem verification
- ___ 15. Describe use of diagnostic hardware
- ___ 16. Alternate operating systems

___ 17. Demo ability to troubleshoot successfully

S. EMPLOYABILITY SKILLS (5 hrs)

- ___ 1. Employment requirements
- ___ 2. Apply learned skills when seeking job
- ___ 3. Design sample résumés
- ___ 4. Describe job specifics for various positions
- ___ 5. Describe qualification needed for job
- ___ 6. Plans for seeking employment
- ___ 7. Identify potential employers
- ___ 8. Accurate/legible/complete job application
- ___ 9. Complete sample job application
- ___ 10. Importance of punctuality in interview
- ___ 11. Positive attitude in job interview
- ___ 12. Enthusiasm in job interview
- ___ 13. Appropriate appearance in interview
- ___ 14. Cleanliness/neatness in interview
- ___ 15. Importance of punctuality on job
- ___ 16. Positive attitude on job
- ___ 17. Enthusiasm for job
- ___ 18. Appropriate appearance on job
- ___ 19. Importance of cleanliness/neatness on job
- ___ 20. Continuous upgrading of job skills
- ___ 21. Proper personal appearance and demeanor
- ___ 22. Customer service to build relationships