

ISPS Technology Pre-K-12 Standards and Benchmarks

High School – A+ PC Technician

Course Description:

In this course students learn how to install, configure, upgrade, troubleshoot and repair computer hardware and operating systems. They are prepared to become an A+ certified computer service technician. A+ Certification is a CompTIA-sponsored testing program that certifies the competency of entry-level (6 months experience) computer service technicians in the computing industry. Students are required to pass two exams (Hardware Service Technician and Operating System Technologies) to become certified.

Theme:

1. The Visible PC
2. Microprocessors
3. RAM
4. Motherboards and BIOS
5. Expansion Bus
6. Power Supplies
7. Floppy Drives
8. Hard Drives
9. DOS
10. Windows 9X
11. Windows 2000
12. DOS Memory in a Windows World
13. SCSI
14. CD Media
15. Sound
16. Video
17. Modems
18. Portable PCs
19. Printers
20. Networks

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Benchmarks - By the end of the year, students will be able to:

1. Identify the different connectors in a PC
2. Identify the most common devices inside a PC
3. Set jumpers and Switches
4. Identify the functions of the data and address bus
5. Describe role of the clock
6. Describe the relationship between RAM and the CPU
7. Install and upgrade processors
8. Identify different types of RAM packaging
9. Describe the different types of DRAM
10. Install RAM properly
11. Describe the function of BIOS
12. Configure and maintain CMOS using various setups
13. Describe the function of an external data bus
14. Describe how I/O addressing works
15. Describe how IRQs and DMAs work
16. Describe COM and LPT ports
17. Describe the different of expansion buses
18. Use a voltmeter to test a power supply
19. Avoid electrostatic discharge
20. Install a floppy drive
21. Maintain a floppy drive
22. Install a hard drive
23. Understand partitioning and formatting
24. Fix common hard-drive problems
25. Understand how DOS stores, manipulates, and retrieves data and programs
26. Use DOS commands and functions
27. Navigate in different Windows environments
28. Maintain a healthy Windows 9X system
29. Troubleshoot Windows 9X
30. Describe the internal functions and structure of Windows 2000
31. Compare and contrast Windows 9X and Windows 2000
32. Use Windows 2000 tools
33. Install/upgrade to Windows 2000
34. Choose parts for a computer system
35. Assemble a computer system
36. Perform basic DOS memory management
37. Configure DOS applications to run in a Windows 9X and Windows 2000 environment
38. Describe in detail how a laser printer functions
39. Repair basic printer errors
40. Describe various network topologies
41. Share resources in a Windows environment
42. Set up TCP/IP Services
43. Install a network card

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44. Perform basic network troubleshooting
45. Describe the components that make video work
46. Describe how refresh rates affect monitors
47. Describe how CRT and LCD monitors function
48. Fix basic monitor problems
49. Understand SCSI chains, IDs and terminations
50. Perform basic SCSI repairs
51. Install a CD Media drive
52. Describe the components that make sound work
53. Install a sound card
54. Fix common sound card problems.
55. Differentiate between analog and serial communication
56. Describe the function of modems and UARTs
57. Define different speed, error correction, and data compression standards
58. Use AT commands for modems
59. Compare and contrast portable PCs and desktop PCs
60. Describe the different types of batteries used
61. Use Power management