EET-1055: COMPUTER HARDWARE SUPPORT

Cuyahoga Community College

Viewing: EET-1055 : Computer Hardware Support

Board of Trustees:
2013-05-23

Academic Term:
Fall 2019

Subject Code
EET - Electrical/Electronic Engineer

Course Number:
1055

Title:
Computer Hardware Support

Catalog Description:
Assemble computer components, install, configure and maintain devices and PCs, properly and safely diagnose, resolve and document common hardware issues while applying troubleshooting skills. Focuses on providing appropriate customer support. Designed in conjunction with industry standard training and certification guidelines.

Credit Hour(s):
4

Lecture Hour(s):
3

Lab Hour(s):
2

Requisites

Prerequisite and Corequisite
EET-1015 Introduction to Computer Maintenance and Repair.

Outcomes

Course Outcome(s):
Identify and assemble computer components and install, configure, and maintain devices and personal computers.

Objective(s):
1. Configure and apply BIOS settings.
2. Identify connector types and associated cables.
3. Install and configure various peripheral devices.
4. Install and configure laptop hardware and components.
5. Install an appropriate power supply based on a given scenario.
6. Compare and contrast the components within the display of a laptop.
7. Compare and contrast laptop features.
8. Explain the differences between the various printer types and summarize the associated imaging process.
9. Understand the applicability of the hardware skills learned to the hardware portion of the current CompTIA A+ Certification exams.
10. Differentiate between motherboard components, their purposes, and properties.
11. Identify types of network cables and connectors
12. Explain properties and characteristics of TCP/IP
13. Categorize characteristics of connectors and cabling
14. Explain common TCP and UDP ports, protocols, and their purpose
15. Compare and contrast wireless networking standards and encryption types
16. Install, configure, and deploy a SOHO wireless/wired router using appropriate settings
17. Compare and contrast Internet connection types and features
18. Compare and contrast RAM types and features.
19. Identify various types of networks
20. Compare and contrast network devices, their functions, and features

21. Given a scenario, use appropriate networking tools
22. Given a scenario, troubleshoot wired and wireless networks with appropriate tools
23. Install and configure expansion cards.
24. Install and configure storage devices and use appropriate media.
25. Differentiate among various CPU types and features and select the appropriate cooling method.
26. Compare and contrast various connection interfaces and explain their purpose.

Course Outcome(s):

Utilize troubleshooting skills to diagnose, resolve, and document common hardware issues correctly and safely and provide appropriate customer support.

Objective(s):

1. Given a scenario, install, and configure appropriate printers.
2. Given a scenario, perform appropriate printer maintenance.
3. Given a scenario, use appropriate safety procedures.
4. Given a scenario, demonstrate proper communication and professionalism.
5. Explain environmental impacts and the purpose of environmental controls.
6. Given a scenario, explain the troubleshooting theory
7. Given a PC maintenance scenario, use appropriate safety procedures
8. Given a PC maintenance scenario, demonstrate proper communication and professionalism
9. Explain the fundamentals of dealing with prohibited content/activity
10. Evaluate and select appropriate components for a custom configuration, to meet customer specifications or needs.

Methods of Evaluation:

1. Class participation
2. Assignments
3. Lab projects
4. In-Class and online examinations
5. Skills Based Examinations

Course Content Outline:

1. Basic PC hardware and system peripherals
   a. BIOS components and configurations
   b. Motherboards types and configurations
   c. CPU, RAM and expansion slots and sockets
   d. Chipsets
   e. Power types and connections
   f. RAM types and features
   g. Expansion cards
   h. Storage devices and media
   i. CPU types, features and cooling methods
   j. I/O connection interfaces and purposes
   k. Electricity and power supplies
   l. Types and features of display devices
   m. Connector types and associated cables
   n. Configuration of peripheral devices
   o. Custom design and configuration of system based on customer needs
2. Networking concepts and hardware
   a. Network cables and connectors
   b. TCP/IP properties and characteristics
   c. TCP and UDP ports and protocols
   d. Networking standards and encryption types
   e. SOHO wireless/wired router properties and characteristics
   f. Internet connection types and features
   g. Types of networks
   h. Functions and features of network devices and hardware
   i. Hardware troubleshooting network tools
3. Laptop and tablet computers

   a. Laptop hardware and components
   b. Laptop display types and components
   c. Laptop features, function keys and add-on hardware components
4. Computer printers
   a. Printer types
   b. Printer imaging processes
   c. Printer drivers and sharing methods
   d. Printer maintenance procedures
5. Troubleshooting theory and techniques
   a. Troubleshooting approaches
   b. Computer hardware troubleshooting scenarios and tools
   c. Networking troubleshooting scenarios and tools
   d. Laptop computer troubleshooting scenarios and tools
   e. Printer troubleshooting scenarios and tools
6. Operational procedures for computer maintenance technicians
   a. Safety procedures, tools and regulations
   b. Environmental impacts and controls
   c. Customer service and communication skills
   d. Ethics, confidentiality and professionalism
   e. Dealing with prohibited/illegal content and activity
7. Discussion of CompTIA A+ Certification hardware objectives, software objectives, and test preparation methods.

Resources

Andrews, J. *A+ guide to managing and maintaining your PC.* 7th. Boston:Course Technology, 2010.

Meyers, M. *Mike Meyers' CompTIA A+ guide to managing and troubleshooting PCs.* 4th. NY:McGraw Hill, 2013.

Pyles, J. *CompTIA A+ complete lab manual.* 1st. Hoboken:Wiley, 2012.

Resources Other

http://www.compTIA.org
http://www.ieee.org
http://www.microsoft.com

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