

Computer Engineering: Grades 9, 10, 11, 12

Adopted 2004

Ensuring Safety

A001. Identify various preventive maintenance products and procedures used with computers **A001**

A002. Identify issues, procedures, and products designed to protect people, hardware, and the surrounding workspace within the computer environment **A002**

Investigating Careers

B001. Describe primary responsibilities of a computer systems technician **B001**

B002. Research career opportunities in computer systems technology **B002**

Using Diagnostic and Troubleshooting Techniques

C001. Identify common symptoms and problems associated with various computer components **C001**

C002. Demonstrate basic troubleshooting procedures **C002**

C003. Recognize common PC hardware problems and determine how to resolve them **C003**

C004. Preventing power system failure **C004**

Configuring a Computer System

D001. Identify basic terms, concepts, and functions of computer system components **D001**

D002. Describe the way each computer system component works during normal operation and during the boot process **D002**

D003. Demonstrate basic procedures for adding and removing field-replaceable units for both desktop and portable computer systems **D003**

D004. Identify available IRQs, DMAs, and I/O addresses and procedures for device installation and configuration **D004**

D005. Identify common computer peripheral ports, associated cabling, and their connectors **D005**

D006. Demonstrate procedures for installing and configuring computer IDE/EIDE devices **D006**

D007. Demonstrate procedures for installing and configuring computer SCSI devices **D007**

D008. Demonstrate procedures for installing and configuring computer peripheral devices **D008**

D009. Identify methods of upgrading computer system hardware performance, including procedures for replacing basic subsystem components **D009**

D010. Identify unique computer components and determine criteria for their use **D010**

**Identifying
Motherboards,
Processors, and Memory**

E001. Compare popular computer CPU chips in terms of basic characteristics **E001**

E002. Identify the categories of computer RAM by terminology, locations, and physical characteristics **E002**

E003. Identify popular types of computer motherboards, their components, and their architecture **E003**

E004. Identify the purpose of computer CMOS, its settings, and the procedures for changing its basic parameters **E004**

**Demonstrating
Knowledge of Operating
System Functions**

F001. Compare computer operating systems in current use in terms of functions, features, and benefits **F001**

F002. Identify the functions, structure, and major system files used to navigate the Windows operating system **F002**

F003. Describe various means of obtaining technical information **F003**

F004. Identify the basic concepts and procedures for creating, viewing, and managing files, directories, and disks **F004**

**Installing and
Configuring an
Operating System**

G001. Identify the procedures for installing the operating system and bringing the software to a basic operational level **G001**

G002. Identify the steps to perform an operating system upgrade **G002**

G003. Identify the basic system boot sequences and boot methods, including the steps to create an emergency boot disk with utilities installed **G003**

G004. Identify procedures for loading or adding and configuring application and hardware device drivers **G004**

G005. Identify where to obtain software and resources related to the operating system **G005**

G006. Identify the procedures for installing the network operating system and bringing the network software to a basic operational level **G006**

Diagnosing and Troubleshooting a PC Operating System

H001. Recognize and interpret the meaning of common error codes and startup messages created during the boot sequence **H001**

H002. Demonstrate steps to correct the problems identified by PC error codes and startup messages **H002**

H003. Recognize common PC operating system problems and determine how to resolve them **H003**

Understanding Basic Network Concepts

I001. Identify basic networking concepts, including its operation and the ramifications of repairs on a network **I001**

I002. Identify the functions of a network administrator **I002**

I003. Identify concepts and capabilities related to the Internet and the basic procedures for setting up a system for Internet access **I003**

I004. Identify the functions, features, and benefits of different web browsers **I004**

Diagnosing and Troubleshooting a Network Operating System

J001. Recognize and interpret the meaning of common network error codes and startup messages created during the boot sequence **J001**

J002. Demonstrate steps to correct problems identified by network error codes and startup messages **J002**

J003. Recognize common network problems and determine how to resolve them **J003**

Installing and Configuring Printers

K001. Identify basic concepts related to primary printer types, including operation and components (laser, inkjet, dye sublimation, and dot matrix) **K001**

K002. Demonstrate care and service techniques for common problems with primary printer types **K002**

Examining Computer-Related Security, Privacy, and Ethical Issues

L001. Identify and remove viruses, worms, bombs, and Trojan horses **L001**

L002. Examine issues of computer-related business ethics **L002**

L003. Examine issues of copyright ownership and infringement **L003**

L004. Examine issues of computer-related privacy **L004**

L005. Identify functions of a network firewall L005

L006. Identify computer security issues L006

L007. Identify harassment issues involving computer use L007

L008. Identify employer-employee issues of electronic documentation ownership L008

General Safety Practices

GS001. Follow personal safety guidelines GS001

GS002. Utilize tools and equipment safely GS002

GS003. Comply with fire and hazardous material guidelines GS003

GS004. Report injuries GS004

GS005. Inspect work place for safe working environment GS005

GS006. Report unsafe personal, environmental, and equipment safety hazards GS006

GS007. Participate in safety training programs GS007

GS008. Practice safe lifting and carrying procedures GS008
