

**Business Education Standards**

**IT Essentials**

**Course Overview:** This course offers hands-on learning experiences emphasizing activities to help students develop fundamental computer and career skills. In this course students will learn a wide variety of information technology skills. The curriculum is provided by CISCO and is an introductory training course to prepare students for future certifications in the information technology field (EUCIP, Comp TIA A+). The course will begin with an in depth computers (cases, power supplies, internal components, cables, ports, and input/output devices). After learning the extensive terminology students will move on to tool use, assembly, troubleshooting, maintenance, installing operating systems, laptop and other portable devices, printers, scanners, and basic networking and security. The course will feature various hands on labs in which students will disassemble and reassemble desktop and laptop computers, install operating systems and software, install printers and scanners, and set up a network. Students will learn technical skills needed to meet the growing demand in the IT field. Students will spend time working on skills in the area of problem solving and troubleshooting.

**Bold standards are essential standards that all students will learn as they complete the course.**

**Unit 1 Introduction to the Personal Computer (10 days)**

**Description:** This unit begins with a review of the various IT industry certifications. Students then learn a brief history of computer hardware. The main focus of the unit is identifying the names, purposes and characteristics of hardware components including power supplies, various internal components, ports, cables, input devices, and output devices.

**Standards**

1. **Identify hardware components inside and outside of a digital device and distinguish which hardware devices would benefit certain tasks. (BIT.IT2.a)**

**Unit 2 Lab Procedures and Tool Use (5 days)**

**Description:** This unit introduces safety procedures for working with IT hardware. The unit also covers common tools of the trade including identification and common uses.

**Standards**

1. **Implement personal and jobsite safety rules and regulations to maintain and improve safe and healthful working conditions and environments. (EHS1.d)**

**Unit 3 Computer Assembly (5 days)**

**Description:** This unit goes through the step by step process of installing components to build, repair, or upgrade a personal computer. Students will demonstrate the following tasks: open the case, install the power supply, attach the components to the motherboard, install the motherboard, install the internal drives, install the drives in external bays, install adapter cards, connect all internal cables, reattach side panels, connect external cables, and finally boot the computer.

**Standards**

1. **Identify hardware components inside and outside of a digital device and distinguish which hardware devices would benefit certain tasks. (BIT.IT2.a)**

**Unit 4 Preventive Maintenance and the Troubleshooting Process (5 days)**

**Description:** This unit will teach students the basic guidelines for performing preventive maintenance and troubleshooting on personal computers. Students will identify the major purposes for performing preventive maintenance. Students will demonstrate the steps in the troubleshooting process.

**Standards**

1. **Perform basic troubleshooting and maintenance for various hardware components as needed. (BIT.IT2.b)**
2. Perform technical support duties and monitor network performance. (BIT.NT3.c)

**Unit 5 Windows Installation (8 days)**

**Description:** In this unit students will perform an installation of the Microsoft Windows operation system. Students will learn a brief history of Microsoft OS and about other operating systems available. Students will describe and compare various operating systems discussing purposes, limitations, compatibilities, and evaluate them based on customer needs.

**Standards**

1. **Install and configure network operating systems. (BIT.NT2.a)**

**Unit 6 Windows Configuration and Management (8 days)**

**Description:** In this continuation of operating systems students will continue to explore what can be done beyond the basic installation. Students will navigate using a GUI. Students will perform configuration, management, maintenance, and troubleshooting of Microsoft Windows operation systems.

**Standards**

1. **Install and configure network operating systems. (BIT.NT2.a)**

**Unit 7 Network Concepts (7 days)**

**Description:** This unit will provide students with an introduction to the operation of networks. Students will learn the basic principles of networking and describe various types of networks. Additionally they will learn the basic networking concepts and technologies including the physical components of a network. The unit will also cover standards organization and Ethernet standards. Students will also learn the OSI and TCP/IP data models.

**Standards**

1. **Apply networking terminology to a networking environment. (BIT.NT1.a)**
2. Evaluate network devices, including network connectivity hardware and describe their functions. (BIT.NT1.b)
3. Install and configure network operating systems. (BIT.NT2.a)
4. Describe server functions (Web, DHCP, DNS, mail, proxy servers) and identify hardware and software requirements. (BIT.NT2.b)
5. Evaluate, select and deploy various network architectures and protocols. (BIT.NT2.c)
6. Create a baseline of system/network performance. (BIT.NT3.a)

**Unit 8 Applied Networking (7 days)**

**Description:** This unit is a continuation in to networking. Students will gain hands on experience in configuring devices to connect to LANS, the Internet, and Cloud services. In this unit students will describe LAN topologies and architectures and identify the names, purposes and characteristics of other technologies used to establish connectivity. Students will also learn how to configure a NIC and a modem/router. Finally students will learn to apply common preventative maintenance techniques used for networks and skills necessary for troubleshooting common network issues.

**Standards**

1. **Apply networking terminology to a networking environment. (BIT.NT1.a)**
2. Evaluate network devices, including network connectivity hardware and describe their functions. (BIT.NT1.b)
3. Install and configure network operating systems. (BIT.NT2.a)
4. Describe server functions (Web, DHCP, DNS, mail, proxy servers) and identify hardware and software requirements. (BIT.NT2.b)
5. Evaluate, select and deploy various network architectures and protocols. (BIT.NT2.c)
6. Create a baseline of system/network performance. (BIT.NT3.a)

**Unit 9 Laptops and Mobile Devices (5 days)**

**Description:** This unit explains how to configures, repair, upgrade, maintain, and troubleshoot laptops and mobile devices. Students will identify the components of a laptop and compare and contrast them with a personal computer (desktop). They will discuss how laptops are configured and also disassemble and reassemble a laptop computer. Students will also compare mobile phone standards. Finally students will identify common preventive maintenance techniques for laptops and portable devices and troubleshooting techniques commonly used.

**Standards**

1. Discuss and demonstrate use of emerging technologies as appropriate to a given task. (BIT.IT1.e)
2. Select and use the most appropriate tool to solve digital problems. (BIT.IT1.f)

**Unit 10 Mobile, Linux, and OS X Operating Systems (5 days)**

**Description:** This unit will explain how to configure, secure, and troubleshoot mobile, Mac, and Linux operating systems. It is a supplement to the previous operating system units and also builds on the unit on mobile devices.

**Standards**

1. Discuss and demonstrate use of emerging technologies as appropriate to a given task. (BIT.IT1.e)
2. Select and use the most appropriate tool to solve digital problems. (BIT.IT1.f)

**Unit 11 Printers (5 days)**

**Description:** In this brief unit students will learn about the various types of printers, scanners, and all in one devices used in homes, business, and industry. Students will install and configure a printer/device to meet requirements and also learn about preventive maintenance and troubleshooting techniques.

**Standards**

1. Prepare images for use in a variety of media. (BIT.DGC4.a)

**Unit 12 Security (7 days)**

**Description:** This unit is a brief introduction to data and physical security. Students will discuss why security is important and describe the various types of threats. Students will identify common protocols and security procedures. Students will learn about implementing basic host, data and network security. Finally students will learn about preventive maintenance and troubleshooting when it comes to security measures.

**Standards**

1. **Recognize system alerts, security problems or environmental problems and demonstrate knowledge of disaster recovery. (BIT.NT3.b)**

**Unit 13 The IT Professional (5 days)**

**Description:** This unit moves in to a career role and explains the roles and responsibilities of the IT professional. Communication skills are emphasized, as well as, how to behave as a professional. Students will explain ethical behavior and the legal aspects of working with computer technology. Students will also work with case studies to understand the call center environment and responsibilities of a technician.

**Standards**

1. Practice efficient and effective spoken communication skills. (BIT.BC1.a)
2. Select language, visuals and method of delivery appropriate to the situation. (BIT.BC1.b)
3. Formulate a positive self-image by exhibiting professional and ethical behavior in the work environment. (BIT.BC2.a)
4. Use proper etiquette to communicate with others. (BIT.BC2.c)
5. Demonstrate proper listening techniques. (BIT.BC6.a)
6. Assess and respond to verbal and nonverbal messages. (BIT.BC6.b)

**Unit 14 Advanced Troubleshooting (8 days)**

**Description:** The final unit calls on students to use higher level thinking skills to bring all their knowledge together. Students will now apply what they have learned to various situations/scenarios. The advanced troubleshooting unit will have students use the steps in the troubleshooting process to identify and troubleshot more advanced problems with both hardware and software or possibly a combination of problems.

**Standards**

1. Select and use the most appropriate tool to solve digital problems. (BIT.IT1.f)
2. **Perform basic troubleshooting and maintenance for various hardware components as needed. (BIT.IT2.b)**