

IT Essentials 1

COURSE OUTLINE

1. **Course Title:** IT Essentials
2. **CBEDS Title:** Telecommunications
3. **CBEDS Number:** 4618
4. **Job Titles:**

Entry level: Computer Operator, field Support Technician, Hardware Installation Coordinator, Help Desk Technician, Network support Technician, Operating Systems Specialist, PC Technician, Service Center Technician, Software Application Support, Systems Analyst, Technical Writer

5. Course Description:

IT Essentials 1 will be a single course divided into two parts. The first of the course, Fundamentals, will cover core competencies in the latest hardware and software technologies, including a greater emphasis on information security skills, safety and environmental issues and soft skills. This first part will align with the CompTia A+ *Essentials* exam required for all A+ candidates.

The second part of the course, Advanced, will be more hands-on and lab-based and cover many of the same Fundamentals topics but in greater depth and with more practical application. All three CompTIA job environment certification exams will be covered: It technical (602), remote support technician (603), and bench technician (604). Instructors will have the flexibility to teach the course based on any or all of the certification exams.

Integrated throughout the course are career preparation standards, which include basic academic skills, communication, interpersonal skills, problem solving, safety, technology, and other employment skills.

Course Objectives:

Prepare students for entry level positions in the IT field within several different working environments:

- The mobile or corporate technical environment requires a high level of fact-to-face client interaction.
- A remote-based work environment where client interaction, client training, operating system and connectivity issues are emphasized.

Student Outcomes:

By the end of the course, students will be able to:

- Define Information Technology (IT) and detail the components of the personal computer
- Protect the student against accident and injury, equipment from damage, and the environment from contamination
- Perform a step by step assembly of a desktop computer tower
- Explain the purpose of preventive maintenance and identify the elements of the troubleshooting process

- Explain, install, navigate, perform preventive maintenance on, and being troubleshooting an Operating System
- Describe remove and replace select components of, perform preventive maintenance on, and begin troubleshooting a laptop, printer/scanner, network and security
- Describe and apply good communication skills and professional behavior while working with customers
- Perform advanced installation, select components based on customer need, perform preventive maintenance on, and perform advanced troubleshooting of a desktop computer tower
- Upgrade select components based on customer need, perform preventive maintenance on, and perform advanced troubleshooting of an Operating System
- Remove and replace select components of, perform preventive maintenance on, and describe and perform advanced troubleshooting of a laptop, printer/scanner, network and security.

Pathway

Recommended Sequence	Courses
Introductory	IT Essentials 1
Skill Building	Cisco Discovery
Advanced Skill	Cisco Explorer

6. Hours: *Students receive up to 180 hours of classroom instruction*

7. Prerequisites: Algebra 1 or consent of instructor

8. Date (of creation/revision): July 2011

9. Course Outline

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Upon successful completion of this course, students will be able to demonstrate the following skills necessary for entry-level employment.				
Instructional Units and Competencies	Course Hours	Model Curr. Standards	CA Academic Content Standards	CAHSEE
<p>I. CAREER PREPARATION</p> <p>A. Career Planning and Management.</p> <ol style="list-style-type: none"> 1. Know the personal qualifications, interests, aptitudes, knowledge, and skills necessary to succeed in careers. <ol style="list-style-type: none"> a. Students will identify skills needed for job success b. Students will identify the education and experience required for moving along a career ladder. 2. Understand the scope of career opportunities and know the requirements for education, training, and licensure. <ol style="list-style-type: none"> a. Students will describe how to find a job. b. Students will select two jobs in the field and map out a timeline for completing education and/or licensing requirements. 3. Know the main strategies for self-promotion in the hiring process, such as completing job applications, resume writing, interviewing skills, and preparing a portfolio. <ol style="list-style-type: none"> a. Students will write and use word processing software to create a resume, cover letters, thank you letters, and job applications. b. Students will participate in mock job interviews. 4. <i>Develop a career plan that is designed to reflect career interests, pathways, and postsecondary options.</i> <ol style="list-style-type: none"> a. <i>Students will conduct a self—assessment and explain how professional qualifications affect career choices.</i> 5. <i>Understand the role and function of professional organizations, industry associations, and organized labor in a productive society.</i> <ol style="list-style-type: none"> a. <i>Contact two professional organization and identify the steps to become a member.</i> 6. <i>Understand the past, present and future trends that affect careers, such as technological developments and societal trends, and the resulting need for lifelong learning.</i> <ol style="list-style-type: none"> a. <i>Students will describe careers in the business industry sector.</i> b. <i>Students will identify work-related cultural differences to prepare for a global workplace.</i> <p>B. Technology.</p> <ol style="list-style-type: none"> 1. Understand past, present and future technological advances as they relate to a chosen pathway and on selected segments of the economy. 2. Understand the use of technological resources to gain access to, manipulate, and produce information, products and services. 3. Use appropriate technology in the chosen career pathway. <p>C. Problem solving and Critical Thinking.</p> <ol style="list-style-type: none"> 1. Understand the systematic problem-solving models that incorporate input, process, outcome and feedback components, and apply appropriate problem-solving strategies and critical thinking to work-related issues and tasks. 	<p>13</p> <p>Additional hours are integrated throughout the course.</p>	<p>Information Technology Industry Sector, Model Curriculum Standards</p> <p>2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0</p>	<p><u>Language Arts</u> (8)</p> <p>R 1.3, 2.6 W1.3, 2.5 LC 1.4,1.5 1.6 LS1.2, 1.3, (9/10) R2.1,2.3,2 W2.5 LC1.4 LS 1.1, 2.3 (11/12) R2.3 W2.5 LC1.2 <u>Math</u> (7) NS1.2, 1.7 MR 1.1,1.3 2.7,2.8, 3.1</p>	<p>Lang. Arts R 8.2.1 (9/10) R 2.1, 2.3 W2.5 Math (7) NS 1.2, 1.3, 1.7 MR 1.1, 2.1, 3.1</p>

Italicized text references "negotiated" curriculum; all other text references "guaranteed" curriculum.

<p>2. Use and apply critical thinking and decision making skills to make informed decisions, solve problems, and achieve balance in the multiple roles of personal, home, work and community life.</p> <p>D. Health and Safety.</p> <ol style="list-style-type: none"> 1. Know policies, procedures, and regulations regarding health and safety in the workplace, including employers' and employees' responsibilities. 2. Understand critical elements of health and safety practices related to a variety of business environments. <p>E. Responsibility & Flexibility.</p> <ol style="list-style-type: none"> 1. Understand the qualities and behaviors that constitute a positive and professional work demeanor. 2. Understand the importance of accountability and responsibility in fulfilling personal, community, and workplace roles and how individual actions can affect the larger community. 3. Understand the need to adapt to varied roles and responsibilities. <p>F. Ethics and Legal Responsibilities</p> <ol style="list-style-type: none"> 1. Know the major local, district, state, and federal regulatory agencies and entities that affect the industry and how they enforce laws and regulations. 2. Understand the concept and application of ethical and legal behavior consistent with workplace standards. <ol style="list-style-type: none"> a. <i>Contact a business and obtain a copy of their rules for employment.</i> b. <i>Role play difference ethical scenarios.</i> 3. Understand the role of personal integrity and ethical behavior in the workplace. <p>G. Leadership and Teamwork.</p> <ol style="list-style-type: none"> 1. Understand the characteristics and benefits of teamwork, leadership, citizenship in the school, community, and workplace settings for effective performance and attainment of goals. 2. Understand the ways in which professional associations, such as Skills USA, ITPA and competitive career development activities enhance academic skills, career choices, and contribute to promote employability. 3. Know multiple approaches to personal conflict resolution and understand how to interact with others in ways that demonstrate respect for individual and cultural differences and for the attitudes and feelings of others. 				
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Instructional Units and Competencies	Hrs	Model Curr. Standards.	CA Academic Standards	CAHSEE
<p>I. IT Technology Basics</p> <p>A. Intro to the Cisco program and account creation</p> <ol style="list-style-type: none"> 1. Getting started it IT 2. Windows Desktop environment 3. Basic features of Windows 4. Overview of software applications <ul style="list-style-type: none"> - Getting to know Windows activity - Number systems exercises <p>B. Math for a Digital Age</p> <ol style="list-style-type: none"> 1. Boolean Operations 2. Converting numbers overview <p>C. Lab Safety and Tools</p> <ol style="list-style-type: none"> 1. Lab Safety Checklist 	15	Info Technology Industry Sector Foundation Stds. 3.1, 3.2, 8.0, 10.0, 10.7	<p>ELA 9-10; R; 2.1</p> <p>ELA 11-12; R; 1.3, 2.3</p> <p>M. 7; 1.1, 1.3</p> <p>Alg. 2; 1.0-3.0, 11.1, 11.2, 13.0, 14.0, 18.0, 21.0</p>	
<p>II. How Computers Work</p> <p>A. Computer Operations</p> <ol style="list-style-type: none"> 1. PC Power Supply 2. BIOS/ROM 3. Expansion Slots 4. RAM and Ram sockets <p>B. Boot Process</p> <p>C. Hardware Components</p> <ol style="list-style-type: none"> 1. Motherboard identification 2. Identifying ROM and BIOS chips 3. Identifying computer expansion slots 4. Identifying RAM and RAM sockets 5. Video card identification 	10	Info Technology Industry Sector Foundation Stds. 10.1, 10.6, 11.0	M. Alg. 2; 1.0-3.0, 11.1, 11.2, 13.0, 14.0, 18.0, 21.0	
<p>III. Assembling a Computer</p> <p>A. Overview of Assembly</p> <ol style="list-style-type: none"> 1. Creating a computer inventory 2. Computer case and power supplies <p>B. Preparing the motherboard for installation</p> <ol style="list-style-type: none"> 1. Motherboard installation 2. Floppy, HD and CD ROM installation 3. Video card installation <p>C. Booting the system for the first time</p>	15	Info Technology Industry Sector Foundation Stds. 10.8		
<p>IV. Operating System Fundamentals</p> <p>A. Operating system</p> <ol style="list-style-type: none"> 1. DOS commands 2. Creating a DOS boot disk <p>B. Memory management</p>	5	Info Technology Industry Sector Foundation Stds. 5.2, 5.3 Info Support & Services PW A1.3, A6.3		

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Instructional Units and Competencies	Hrs	Model Curr. Standards.	CA Academic Standards	CAHSEE
V. Windows 9X OS A. Win 9X file structure 1. Change file views in windows (showing file extensions) 2. Text editing and file management B. Windows management with control panel 1. Hard drive preparation using FDISK and FORMAT C. System tools 1.Windows OS installation D. Preparing a HD for OS installation E. Installing Windows 9X F. Troubleshooting the installation process	10	Info Technology Industry Sector Foundation Stds. 5.2, 5.3, 10.8 Info Support & Services PW A1.3, A6.3	M/Alg 8-12(24.2) Sci 9-12 1.2(1.d)	
VI. Windows 2000 OS A. Windows 9X contrast B. System tools C. Overview of the installation process 1. Creating user accounts 2. Assigning permissions D. Installing Windows 2000 E. Special Installations	10	Info Technology Industry Sector Foundation Stds. 5.2, 5.3 Info Support & Services PW A1.6, A6.3		
VII. Windows XP OS A. Overview of the installation process B. Installing Windows XP C. Simple file sharing D. Special installations 1. Remote desktop connection 2. Internet connection firewall 3. Using the Windows XP Start Menu and Windows Explorer	10			
VIII. Multimedia Capabilities A. Introduction to Multimedia 1. Multimedia devices B. Upgrading video with accelerators C. Sound Cards D. CD and DVD terminology	10			
IX. Advanced Hardware Fundamentals for Servers A. Network server operations B. Configuring external peripherals C. Adding hardware to a server D. Upgrading server components	5			

Instructional Units and Competencies	Hours	Model Curr. Standards.	CA Academic Standards	CAHSEE
<p>X. Network Fundamentals</p> <ul style="list-style-type: none"> A. Types of networks B. Adding a network interface card C. Physical components of a network D. LAN architectures E. Network protocols and the OSI model F. TCP/IP utilities G. Connecting to the Internet 	15	Info Technology Industry Sector Foundation Stds. 5.2, 5.3 Info Support & Services PW A1.3, A6.3		
<p>XI. Printers and Sharing</p> <ul style="list-style-type: none"> A. Understand printers and printing B. Buying a printer C. Connection to a printer D. Setting up print sharing capabilities E. Managing files in a printer queue F. Troubleshooting 	9			
<p>XII. Preventive Maintenance</p> <ul style="list-style-type: none"> A. Environmental considerations B. Electrostatic discharge (ESD) C. Preventive maintenance for components D. Preventive maintenance for peripherals <ul style="list-style-type: none"> 1. Using a clean digital multimeter 2. Cleaning computer components E. Computer software for preventive maintenance <ul style="list-style-type: none"> 1. Using the Scandisk and Defrag utilities F. Preventive maintenance and power issues 	15	Info Technology Industry Sector Foundation Stds. 10.1, 10.6, 11.0		
<p>XIII. Troubleshooting PC Hardware</p> <ul style="list-style-type: none"> A. Troubleshooting basics B. Steps in the troubleshooting cycle C. Troubleshooting peripherals D. Troubleshooting hardware E. Identifying POST errors 	5	Info Technology Industry Sector Foundation Stds. 5.2, 5.3 Info Support & Services PW A1.3, A6.3		
<p>XIV. Troubleshooting Software</p> <ul style="list-style-type: none"> A. Troubleshooting process B. DOS troubleshooting issues C. Common Windows OS problems D. Troubleshooting Windows 9X using systems tools and system editors E. Windows 9X and 2000 registry problems F. Troubleshooting Windows NT 4/2000 G. Troubleshooting Windows XP H. Troubleshooting applications I. Windows data backup and recovery J. Windows printer software problems K. Windows network software connections L. Windows 9X, NT, 2000 & XP Help 	18	Info Technology Industry Sector Foundation Stds. 10.1, 10.6, 11.0		
<p>XV. Course Review</p> <ul style="list-style-type: none"> A. Review labs and worksheets B. Finish all exams C. Final exam prep: 3 days A+ Study Guide; 2 days A+ Practice Tests 	15			

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10. Additional recommended/optional items

- a. Articulation: None
- b. Academic credit: None
- c. Instructional strategies:

 Methods of Instruction:

- a. Lecture
 - b. Audio Visual Materials
 - c. Labs and Worksheets
 - d. Research Readings and Written Presentations
 - e. Homework Assignments
 - f. Group & Individual Projects
 - g. Discussion & Group Dynamics
 - h. Quizzes, Tests, Performance Evaluations & Final Exam
 - i. Guest Speakers
 - j. Internet Exploration
- d. Instructional materials: Text book: IT Essentials (Online)
- e. Certificates: A+ Certification Core Hardware and/or
 A+ Certification OS Technologies