

Course Outline

Information and Communication Technologies

REVISED: August/2017

Job Title:
Computer Technician

Career Pathway:
Networking

Industry Sector:
Information and Communication
Technologies

O*NET-SOC CODE:
49-2011.00

CBEDS Title:
Network Engineering

CBEDS No.:
4633

79-30-65

Computer Technician (Introduction)

Credits: 10

Hours: 120

Course Description:

This competency-based course prepares students for entry-level positions in the field of microcomputer repair. Instruction includes an introduction to the hardware components of a computer system, introduction to computer math, and basic electrical and electronic theory with transition to specific skill training in a computing machinery technology. This course introduces the student to DOS 6.2x, to the components of the systemboard, microprocessors and hard drives. Students will learn the fundamentals of installing hard drives, understand system resources and resolve conflicts, and identify types of memory as they are used in computer processing. Other areas of instruction include: the components of monitors, multimedia/peripherals, and modems. Instruction includes an introduction to Windows 9x and its support. Students are introduced to the skills needed in the diagnosis and the service of microcomputers and printers. The competencies in this course are aligned with the California High School Academic Content Standards and the California Career Technical Education Model Curriculum Standards.

Prerequisites:

Enrollment requires an 8.0 reading level as measured by the TABE D 9/10, and math skills equivalent to Math 2 (53-03-76) course.

NOTE: For Perkins purposes this course has been designated as an **introductory** course.

This course cannot be repeated once a student receives a Certificate of Completion.



COURSE OUTLINE COMPETENCY-BASED COMPONENTS

A course outline reflects the essential intent and content of the course described. Acceptable course outlines have six components. (Education Code Section 52506). Course outlines for all apportionment classes, including those in jails, state hospitals, and convalescent hospitals, contain the six required elements:

(EC 52504; 5CCR 10508 [b]; Adult Education Handbook for California [1977], Section 100)

COURSE OUTLINE COMPONENTS

LOCATION

GOALS AND PURPOSES

Cover

The educational goals or purposes of every course are clearly stated and the class periods are devoted to instruction. The course should be broad enough in scope and should have sufficient educational worth to justify the expenditure of public funds.

The goals and purpose of a course are stated in the COURSE DESCRIPTION. Course descriptions state the major emphasis and content of a course, and are written to be understandable by a prospective student.

PERFORMANCE OBJECTIVES OR COMPETENCIES

pp. 7-15

Objectives should be delineated and described in terms of measurable results for the student and include the possible ways in which the objectives contribute to the student's acquisition of skills and competencies.

Performance Objectives are sequentially listed in the COMPETENCY-BASED COMPONENTS section of the course outline. Competency Areas are units of instruction based on related competencies. Competency Statements are competency area goals that together define the framework and purpose of a course. Competencies fall on a continuum between goals and performance objectives and denote the outcome of instruction.

Competency-based instruction tells a student before instruction what skills or knowledge they will demonstrate after instruction. Competency-based education provides instruction which enables each student to attain individual goals as measured against pre-stated standards.

Competency-based instruction provides immediate and continual repetition and In competency-based education the curriculum, instruction, and assessment share common characteristics based on clearly stated competencies. Curriculum, instruction and assessment in competency-based education are: explicit, known, agreed upon, integrated, performance oriented, and adaptive.

COURSE OUTLINE COMPETENCY-BASED COMPONENTS
(continued)

COURSE OUTLINE COMPONENTS

LOCATION

INSTRUCTIONAL STRATEGIES

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Instructional techniques or methods could include laboratory techniques, lecture method, small-group discussion, grouping plans, and other strategies used in the classroom.

Instructional strategies for this course are listed in the TEACHING STRATEGIES AND EVALUATION section of the course outline. Instructional strategies and activities for a course should be selected so that the overall teaching approach takes into account the instructional standards of a particular program, i.e., English as a Second Language, Programs for Adults with Disabilities.

UNITS OF STUDY, WITH APPROXIMATE HOURS ALLOTTED FOR EACH UNIT

Cover

The approximate time devoted to each instructional unit within the course, as well as the total hours for the course, is indicated. The time in class is consistent with the needs of the student, and the length of the class should be that it ensures the student will learn at an optimum level.

pp. 7-15

Units of study, with approximate hours allotted for each unit are listed in the COMPETENCY AREA STATEMENT(S) of the course outline. The total hours of the course, including work-based learning hours (community classroom and cooperative vocational education) is listed on the cover of every CBE course outline. Each Competency Area listed within a CBE outline is assigned hours of instruction per unit.

EVALUATION PROCEDURES

pp. 17-18

The evaluation describes measurable evaluation criteria clearly within the reach of the student. The evaluation indicates anticipated improvement in performances as well as anticipated skills and competencies to be achieved.

Evaluation procedures are detailed in the TEACHING STRATEGIES AND EVALUATION section of the course outline. Instructors monitor students' progress on a continuing basis, assessing students on attainment of objectives identified in the course outline through a variety of formal and informal tests (applied performance procedures, observations, and simulations), paper and pencil exams, and standardized tests.

REPETITION POLICY THAT PREVENTS PERPETUATION OF STUDENT ENROLLMENT

Cover

After a student has completed all the objectives of the course, he or she should not be allowed to reenroll in the course. There is, therefore, a need for a statement about the conditions for possible repetition of a course to prevent perpetuation of students in a particular program for an indefinite period of time.

ACKNOWLEDGMENTS

Thanks to GONZALO PEREZ and BRENDA VELA for developing and editing this curriculum. Acknowledgment is also given to ERICA ROSARIO for designing the original artwork for the course covers.

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CALIFORNIA CAREER TECHNICAL EDUCATION MODEL CURRICULUM STANDARDS
Information and Communication Technologies Industry Sector
Knowledge and Performance Anchor Standards

1.0 Academics

Analyze and apply appropriate academic standards required for successful industry sector pathway completion leading to postsecondary education and employment. Refer to the Information and Communication Technologies academic alignment matrix for identification of standards.

2.0 Communications

Acquire and accurately use Information and Communication Technologies sector terminology and protocols at the career and college readiness level for communicating effectively in oral, written, and multimedia formats.

3.0 Career Planning and Management

Integrate multiple sources of career information from diverse formats to make informed career decisions, solve problems, and manage personal career plans.

4.0 Technology

Use existing and emerging technology, to investigate, research, and produce products and services, including new information, as required in the Information and Communication Technologies sector workplace environment.

5.0 Problem Solving and Critical Thinking

Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the Information and Communication Technologies sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques.

6.0 Health and Safety

Demonstrate health and safety procedures, regulations, and personal health practices and determine the meaning of symbols, key terms, and domain-specific words and phrases as related to the Information and Communication Technologies sector workplace environment.

7.0 Responsibility and Flexibility

Initiate, and participate in, a range of collaborations demonstrating behaviors that reflect personal and professional responsibility, flexibility, and respect in the Information and Communication Technologies sector workplace environment and community settings.

8.0 Ethics and Legal Responsibilities

Practice professional, ethical, and legal behavior, responding thoughtfully to diverse perspectives and resolving contradictions when possible, consistent with applicable laws, regulations, and organizational norms.

9.0 Leadership and Teamwork

Work with peers to promote divergent and creative perspectives, effective leadership, group dynamics, team and individual decision making, benefits of workforce diversity, and conflict resolution such as those practiced in the Future Business Leaders of America and SkillsUSA career technical student organization.

10.0 Technical Knowledge and Skills

Apply essential technical knowledge and skills common to all pathways in the Information and Communication Technologies sector, following procedures when carrying out experiments or performing technical tasks.

11.0 Demonstration and Application

Demonstrate and apply the knowledge and skills contained in the Information and Communication Technologies anchor standards, pathway standards, and performance indicators in classroom, laboratory, and workplace settings, and through career technical student organizations such as Future Business Leaders of America and SkillsUSA.

Information and Communication Technologies Pathway Standards

B. Networking Pathway

Students in the Networking pathway prepare for careers that involve network analysis, planning, and implementation, including the design, installation, maintenance, and management of network systems. The successful establishment, maintenance, and securing of information and communication technologies infrastructure is critical to the success of every twenty-first century organization. Employment continues to grow for persons with expertise in networking.

Sample occupations associated with this pathway:

- ◆ Computer Security Specialist
- ◆ Network Technician
- ◆ Network Engineer
- ◆ Network Administrator
- ◆ Telecommunication Specialist

- B1.0 Identify and describe the principles of networking and the technologies, models, and protocols used in a network.
- B2.0 Identify, describe, and implement network media and physical topologies.
- B3.0 Install, configure, and differentiate between common network devices.
- B4.0 Demonstrate proper network administration and management skills.
- B5.0 Demonstrate how to communicate and interpret information clearly in industry-standard visual and written formats.
- B6.0 Use and assess network communication applications and infrastructure.
- B7.0 Analyze a customer's organizational needs and requirements to identify networking needs.
- B8.0 Identify security threats to a network and describe general methods to mitigate those threats.

CBE
Competency-Based Education

COMPETENCY-BASED COMPONENTS
for the Computer Technician (Introduction) Course

COMPETENCY AREAS AND STATEMENTS	MINIMAL COMPETENCIES	STANDARDS
<p>A. ORIENTATION AND SAFETY</p> <p>Know the skills and safety regulations required for employment in the service and support technician fields.</p> <p>(3 hours)</p>	<ol style="list-style-type: none"> 1. Describe qualifications and prerequisites for this trade. 2. Describe working conditions and opportunities. 3. Describe CompTIA’s Certification Exams. 4. Describe Emergency Procedures. 5. Describe classroom “shop” policies and procedures. 6. Pass the designated safety test with 100% accuracy. 	<p>Career Ready Practice: 1, 2, 4, 11</p> <p>CTE Anchor: Communications: 2.4, 2.5, 2.7 Career Planning and Management: 3.1, 3.2, 3.3, 3.4, 3.5, 3.9 Technology: 4.1, 4.2, 4.3, 4.6 Responsibility and Flexibility: 7.3, 7.7, 7.8 Ethics and Legal Responsibilities: 8.1, 8.5 Leadership and Teamwork: 9.2, 9.6 Technical Knowledge and Skills: 10.1, 10.4, 10.14, 11.2</p> <p>CTE Pathway: B1.1, B1.2, B2.2</p>
<p>B. INTRODUCTION TO HARDWARE</p> <p>Learn the hardware components of a computer system.</p>	<ol style="list-style-type: none"> 1. Identify the parts of a microcomputer. 2. Explain hardware and software. 3. Define FRU. 4. Define firmware. 5. Explain how to identify the different types of ports. 6. Explain how to identify the different types of connectors. 7. Explain how to identify the different types of expansion slots/busses. 8. 	<p>Career Ready Practice: 1, 2, 4, 10</p> <p>CTE Anchor: Communications: 2.4, 2.5</p>

COMPETENCY AREAS AND STATEMENTS	MINIMAL COMPETENCIES	STANDARDS
(3 hours)	9. Explain how to identify the different types of hard drives and controllers. 10. Explain how to identify the different types of ribbons and cables. 11. Define RAM. 12. Define ROM. 13. Explain the difference between volatile and non-volatile memory. 14. Explain primary and secondary storage. 15. Define Central Processing Unit. 16. Define Peripheral. 17. Dismantle a computer. 18. Reassemble the computer. 19. Pass a written Hardware Identification exam.	Technology: 4.3, 4.6 Technical Knowledge and Skills: 10.1, 10.13 Demonstration and Application: 11.2 CTE Pathway: B1.1
C. COMPUTER MATH Understand the powers of ten, metric prefixes, and the binary and hexadecimal number systems.	1. Explain the Powers of Ten and the decimal number system. 2. Explain the Metric Prefixes associated with computers (engineering prefixes). 3. Explain the Binary Number System. 4. Demonstrate how to convert numbers from decimal numbers to binary numbers. 5. Demonstrate how to convert numbers from binary numbers to decimal numbers. 6. Explain the Hexadecimal Number System. 7. Demonstrate how to convert numbers from decimal numbers to hexadecimal numbers. 8. Demonstrate how to convert from hexadecimal numbers to decimal numbers. 9. Demonstrate how to convert from hexadecimal numbers to binary numbers. 10. Demonstrate how to convert from binary numbers to hexadecimal numbers. 11. Describe ASCII Code. 12. Pass a written Computer Math exam with a passing score of 80% or higher.	Career Ready Practice: 1, 2, 4, 10, 11 CTE Anchor: Communications: 2.4, 2.5 Technology: 4.3, 4.6 Technical Knowledge and Skills: 10.1, 10.13 Demonstration and Application: 11.2 CTE Pathway: B1.1
D. ELECTRICITY AND POWER Know the law of electromagnetism and Ohm's Law and their relevance to the structure and function of personal computers.	1. Explain the Fundamental Laws of repulsion and attraction of like/unlike charges/poles. 2. Explain Ohm's Law. 3. Explain Series Circuits. 4. Explain Parallel Circuits. 5. Explain Combination Circuits. 6. Demonstrate basic soldering technique. 7. Demonstrate the use of a digital multimeter. 8. Explain power conditioners and uninterruptible power supplies. 9. Describe the use of various power supplies for preventing loss of data and damage to hardware from sags and surges. 10. Explain surge suppressors and power strips. 11. Demonstrate how to measure voltages on a power supply. 12. Demonstrate how to measure voltages to the motherboard. 13. Demonstrate how to measure voltages of keyboard connector.	Career Ready Practice: 1, 2, 4, 10 CTE Anchor: Communications: 2.4, 2.5 Technology: 4.3, 4.6 Technical Knowledge and Skills: 10.1, 10.13 Demonstration and

COMPETENCY AREAS AND STATEMENTS	MINIMAL COMPETENCIES	STANDARDS
(5 hours)	14. Describe preventive maintenance and ESD. 15. Pass a written Electricity and Power Supplies exam.	Application: 11.2 CTE Pathway: B1.1
E. INTRODUCTION TO DOS 6.2x Learn DOS 6.2x structure and beginning commands. (10 hours)	1. Explain the difference between hardware, software, and operating system. 2. Describe the relationship between the operating system and the BIOS. 3. Explain how DOS organizes a disk. 4. Define track. 5. Define sector. 6. Define cylinder. 7. Define cluster. 8. Describe the File Allocation Table and Boot Record. 9. Explain the hierarchical structure of DOS. 10. Explain the POST and BOOT sequence. 11. Describe POST numerical error codes. 12. Describe POST audible error codes. 13. Describe 10.SYS, MSDOS.SYS, and COMMAND.COM files. 14. Demonstrate the use of beginning DOS commands. 15. Define internal and external commands. 16. Describe phantom directories. 17. Pass a written Introduction to DOS exam.	Career Ready Practice: 1, 2, 4, 10, 11 CTE Anchor: Communications: 2.4, 2.5 Technology: 4.3, 4.6 Technical Knowledge and Skills: 10.1, 10.13 Demonstration and Application: 11.2 CTE Pathway: B1.1
F. THE SYSTEMBOARD Understand the features and functions of the motherboard. (3 hours)	1. Explain the system bus. 2. Identify the different types of expansion slots. 3. Identify SIMM/DIMM slots. 4. Identify cache memory. 5. Identify Pipeline Burst slot. 6. Demonstrate how to set jumpers/switches. 7. Explain the Pin One Rule. 8. Identify the BIOS chip. 9. Explain the difference between the system clock and the real-time clock. 10. Pass a written Systemboard exam.	Career Ready Practice: 1, 2, 4, 10, 11 CTE Anchor: Communications: 2.4, 2.5 Technology: 4.3, 4.6 Technical Knowledge and Skills: 10.1, 10.13 Demonstration and Application: 11.2 CTE Pathway: B1.1

COMPETENCY AREAS AND STATEMENTS	MINIMAL COMPETENCIES	STANDARDS
<p>G. MICROPROCESSORS</p> <p>Know the features and functions of the microprocessor.</p> <p>(3 hours)</p>	<ol style="list-style-type: none"> 1. Define Microprocessor. 2. Define Cache. 3. Explain Real Mode. 4. Explain Protected Mode. 5. Explain Virtual Real Mode. 6. Describe CISC technology. 7. Describe RISC technology. 8. Pass a written Microprocessors exam. 	<p>Career Ready Practice: 1, 2, 4, 10</p> <p>CTE Anchor: Communications: 2.4, 2.5 Technology: 4.3, 4.6 Technical Knowledge and Skills: 10.1, 10.13</p> <p>CTE Pathway: B1.1</p>
<p>H. HARD DRIVES</p> <p>Learn the features and functions of hard drives.</p> <p>(10 hours)</p>	<ol style="list-style-type: none"> 1. Describe hard drive subsystem. 2. Explain drive capacity. 3. Explain translation. 4. Explain write precompensation. 5. Describe physical drives and logical drives. 6. Define landing zone. 7. Describe 3 dimensional and linear addressing schemes. 8. Describe Logical Block Addressing. 9. Describe fragmentation. 10. Describe cross-linked and lost clusters. 11. Describe disk compression. 12. Describe disk caching. 13. Describe data transfer rates. 14. Describe RLL/MFM/ESDI technologies. 15. Describe IDE/EIDE technologies. 16. Describe ATA and ATA-e. 17. Describe ATAPI. 18. Describe SCSI technology. 19. Describe viruses. 20. Pass a written Hard Drives exam. 	<p>Career Ready Practice: 1, 2, 4</p> <p>CTE Anchor: Communications: 2.4 Technology: 4.3, 4.6 Technical Knowledge and Skills: 10.1, 10.13</p> <p>CTE Pathway: B1.1</p>
<p>I. INSTALLING HARD DRIVES</p> <p>Understand the proper installation of hard drives.</p>	<ol style="list-style-type: none"> 1. Describe designation of master and slave. 2. Describe jumper settings. 3. Demonstrate physical installation. 4. Demonstrate CMOS setup. 5. Describe low-level/physical format. 6. Demonstrate partitioning. 7. Demonstrate high-level/logical format. 8. Demonstrate setup of master and slave. 9. Describe the use of multiple operating systems. 	<p>Career Ready Practice: 1, 2, 4, 10, 11</p> <p>CTE Anchor: Communications: 2.4 Technology: 4.3, 4.6</p>

COMPETENCY AREAS AND STATEMENTS	MINIMAL COMPETENCIES	STANDARDS
(5 hours)	10. Demonstrate troubleshooting guidelines. 11. Describe preventive maintenance. 12. Demonstrate proper preparation and installation of hard drives.	Technical Knowledge and Skills: 10.1, 10.3, 10.13 Demonstration and Application: 11.2 CTE Pathway: B1.1
J. CONFIGURATION Know the basics of system resources and resolution of conflicts.	1. Define resources. 2. Describe IRQs and interrupts. 3. Describe DMAs. 4. Describe Bus Mastering. 5. Describe I/O Addresses. 6. Describe RAM/ROM Addresses. 7. Describe conflicts and how to resolve them. 8. Describe Plug and Play and how it works. 9. Pass a written Configuration exam.	Career Ready Practice: 1, 2, 4, 11 CTE Anchor: Communications: 2.4 Technology: 4.3, 4.6 Technical Knowledge and Skills: 10.1, 10.5, 10.13 Demonstration and Application: 11.2 CTE Pathway: B1.1
K. MEMORY Learn the features and functions of a computer memory.	1. Define Dynamic RAM. 2. Define Static RAM. 3. Describe caching memory. 4. Describe memory speeds. 5. Describe memory parity. 6. Describe EDO and FPM memory. 7. Describe flash ROM/EEPROM. 8. Define Synchronous DRAM. 9. Describe Synchronous and Asynchronous SRAM. 10. Define Burst RAM. 11. Describe Shadow RAM. 12. Describe BIOS NVRAM. 13. Describe RAM drives. 14. Pass a written Memory exam.	Career Ready Practice: 1, 2, 4 CTE Anchor: Communications: 2.4 Technology: 4.3, 4.6 Technical Knowledge and Skills: 10.1, 10.13 CTE Pathway: B1.1

COMPETENCY AREAS AND STATEMENTS	MINIMAL COMPETENCIES	STANDARDS
<p>L. MONITORS</p> <p>Understand the features and functions of the different components of monitors.</p> <p>(2 hours)</p>	<ol style="list-style-type: none"> 1. Define pixel. 2. Define raster. 3. Define bitmap. 4. Define font. 5. Define typeface. 6. Define bitmapped font. 7. Define vector/outline font. 8. Describe the difference between font and typeface. 9. Describe scalable fonts. 10. Describe True Type fonts. 11. Define resolution in monitors. 12. Describe refresh rates. 13. Describe interlaced and non-interlaced monitors. 14. Describe dot pitch. 15. Explain green monitors. 16. Describe upgrading VRAM. 17. Describe the resolutions of various video adapters. 18. Pass a written Monitors and Fonts Exam. 	<p>Career Ready Practice: 1, 2, 4, 10, 11</p> <p>CTE Anchor: Communications: 2.4 Technology: 4.3, 4.6 Ethics and Legal Responsibilities: 8.2 Technical Knowledge and Skills: 10.1, 10.13 Demonstration and Application: 11.2</p> <p>CTE Pathway: B1.1</p>
<p>M. MULTIMEDIA/PERIPHERALS</p> <p>Learn the features and functions of the installation, maintenance and troubleshooting peripherals.</p> <p>(10 hours)</p>	<ol style="list-style-type: none"> 1. Demonstrate installation of FDD. 2. Demonstrate installation of CD-ROMs. 3. Demonstrate installation of sound cards. 4. Describe resolution in sound cards. 5. Demonstrate installation of scanners. 6. Demonstrate installation of various other peripherals. 	<p>Career Ready Practice: 1, 2, 4, 10</p> <p>CTE Anchor: Communications: 2.3, 2.4 Technology: 4.3 Technical Knowledge and Skills: 10.1, 10.3, 10.5, 10.13 Demonstration and Application: 11.2</p> <p>CTE Pathway: B1.1</p>

COMPETENCY AREAS AND STATEMENTS	MINIMAL COMPETENCIES	STANDARDS
<p>N. MODEMS</p> <p>Understand and support modems.</p> <p>(5 hours)</p>	<ol style="list-style-type: none"> 1. Describe communications layers. 2. Explain the UART chips. 3. Define Modulate and Demodulate. 4. Describe RS232c standard. 5. Describe modem speeds. 6. Describe handshaking. 7. Demonstrate installing a modem. 8. Demonstrate configuring a modem. 9. Describe the Hayes AT Command Set. 10. Pass a written Modems Exam and demonstrate the ability to configure internal modems. 	<p>Career Ready Practice: 1, 2, 4, 10, 11</p> <p>CTE Anchor: Communications: 2.3, 2.4 Technology: 4.3 Technical Knowledge and Skills: 10.1, 10.3, 10.5, 10.13</p> <p>CTE Pathway: B1.1</p>
<p>O. WINDOWS 9x</p> <p>Know the use Windows 9x without a mouse.</p> <p>(15 hours)</p>	<ol style="list-style-type: none"> 1. Demonstrate keystrokes needed to move around Windows without a mouse. 2. Demonstrate the use of the Windows keys for right clicking/alternate clicking. 3. Define shortcuts. 4. Define applet. 5. Demonstrate the use of folders. 6. Demonstrate the use of long file names. 7. Describe the desktop. 8. Demonstrate customizing the desktop. 9. Demonstrate how to manage files with Explorer. 10. Describe the Start button. 11. Describe the Taskbar. 12. Describe the Control Panel Applets. 13. Describe the My Computer icon and its contents. 14. Demonstrate use of The Print Manager. 15. Demonstrate creating a dial-up connection. 16. Demonstrate adding/removing components after installation. 17. Demonstrate how to exit Windows properly. 18. Pass a written Windows 9x exam and demonstrate the ability to move around Windows without a mouse. 	<p>Career Ready Practice: 1, 2, 4, 10</p> <p>CTE Anchor: Communications: 2.3, 2.4 Technology: 4.3 Technical Knowledge and Skills: 10.1, 10.3, 10.5, 10.13 Demonstration and Application: 11.2</p> <p>CTE Pathway: B1.1</p>
<p>P. SUPPORTING WINDOWS 9x</p> <p>Learn the basics of supporting Windows 9x.</p>	<ol style="list-style-type: none"> 1. Describe minimum hardware requirements. 2. Describe recommended hardware requirements. 3. Describe optimal hardware requirements. 4. Demonstrate installation of Windows 95. 5. Demonstrate installation of Windows 98. 6. Describe the difference between the full and upgrade versions of Windows. 	<p>Career Ready Practice: 1, 2, 4, 10</p> <p>CTE Anchor: Communications: 2.3, 2.4</p>

COMPETENCY AREAS AND STATEMENTS	MINIMAL COMPETENCIES	STANDARDS
(3 hours)	<ol style="list-style-type: none"> 7. Demonstrate installation of Win 9x over DOS to make the system dual booting. 8. Describe the difference between the diskette and CD-ROM editions of Win 95. 9. Describe the differences among the Windows 95 A, B, and C editions. 10. Describe CAB files. 11. Demonstrate copying CABs to hard drive to run setup. 12. Describe custom installations. 13. Describe various problems that may arise during installation and how to resolve them. 14. Describe USER.EXE file. 15. Explain PIFs. 16. Explain property sheets. 17. Demonstrate the ability to support Windows 9x system. 	<p>Technology: 4.3, 4.6</p> <p>Technical Knowledge and Skills: 10.1, 10.3, 10.5, 10.13</p> <p>Demonstration and Application: 11.2</p> <p>CTE Pathway: B1.1</p>
<p>Q. THE INTERNET</p> <p>Understand the features and functions of the internet.</p> <p>(5 hours)</p>	<ol style="list-style-type: none"> 1. Define internet. 2. Define intranet. 3. Describe the WWW or internet. 4. Define browser. 5. Define ISP. 6. Define IP address. 7. Define URL. 8. Describe TCP/IP. 9. Demonstrate connecting to the Internet using Win 3.1x. 10. Demonstrate connecting to the Internet using Win 9x. 11. Demonstrate downloading drives from the internet. 12. Demonstrate downloading documentation for various boards from the internet. 13. Demonstrate the use of the internet for keeping up with technology. 14. Demonstrate using the internet as a resource for reference material. 15. Pass a written Internet Exam. 	<p>Career Ready Practice: 1, 2, 4, 10, 11</p> <p>CTE Anchor: Communications: 2.3, 2.4</p> <p>Technology: 4.3</p> <p>Technical Knowledge and Skills: 10.1, 10.3, 10.5, 10.13</p> <p>Demonstration and Application: 11.2</p> <p>CTE Pathway: B1.1</p>
<p>R. TROUBLESHOOTING SKILLS</p> <p>Know the diagnostic and service procedures for microcomputers and printers.</p>	<ol style="list-style-type: none"> 1. Describe the importance of backing up a system. 2. Explain how to approach the problem logically. 3. Explain how to approach the problem systematically. 4. Describe the importance of researching. 5. Describe the importance of talking to the user. 6. Describe how to talk to the user to acquire information. 7. Role-play listening to a user, providing feedback, and diagnosis. 8. Describe copyright laws and piracy. 9. Define <i>intermittent problems</i>. 10. Explain the importance of problem isolation. 	<p>Career Ready Practice: 1, 2, 4, 5, 10</p> <p>CTE Anchor: Communications: 2.3, 2.4</p> <p>Technology: 4.3</p>

COMPETENCY AREAS AND STATEMENTS	MINIMAL COMPETENCIES	STANDARDS
(25 hours)	<ol style="list-style-type: none"> 11. List a variety of diagnostic software and their uses. 12. Demonstrate how to use diagnostic software. 13. Define the steps of problem determination. 14. Define the steps of problem verification. 15. Describe the use of diagnostic hardware. 16. Describe alternate operating systems. 17. Demonstrate the ability to troubleshoot by successfully diagnosing system problems and resolving them. 	<p>Problem Solving and Critical Thinking: 5.3, 5.5 Technical Knowledge and Skills: 10.1 Demonstration and Application: 11.1, 11.2, 11.3</p> <p>CTE Pathway: B1.1, B4.1, B4.2, B7.1</p>
<p>S. EMPLOYABILITY SKILLS</p> <p>Understand, apply, and evaluate the employability skills required in the computer technician field.</p> <p>(5 hours)</p>	<ol style="list-style-type: none"> 1. Describe employment requirements. 2. Know how to apply learned skills when seeking employment. 3. Design sample résumés. 4. Describe job specifics for various positions. 5. Describe qualifications needed for employment. 6. Describe plans for seeking employment. 7. Identify potential employers. 8. Describe requirements of filling out a job application such legibility, correctness, and completeness. 9. Complete sample job application forms correctly. 10. Describe the importance of punctuality in a job interview. 11. Describe the importance of a positive attitude in a job interview. 12. Describe the importance of enthusiasm in a job interview. 13. Describe the importance of appropriate appearance on the job interview. 14. Describe the importance of cleanliness and neatness in a job interview. 15. Describe the importance of punctuality on the job. 16. Describe the importance of a positive attitude on the job. 17. Describe the importance of enthusiasm on the job. 18. Describe the importance of appropriate appearance on the job. 19. Describe the importance of cleanliness and neatness on the job. 20. Describe the importance of continuous upgrading of job skills. 21. Describe proper personal appearance and demeanor. 22. Describe customer service as a method of building permanent relationships between the organization and the customer. 	<p>Career Ready Practice: 1, 2, 3, 11</p> <p>CTE Anchor: Communications: 2.4 Technology: 4.2 Demonstration and Application: 11.2</p> <p>CTE Pathway: B1.1</p>

SUGGESTED INSTRUCTIONAL MATERIALS and OTHER RESOURCES

TEXTBOOKS

Downing, Douglas, PhD., et al. Dictionary of Computer and Internet Terms. Mc-Graw-Hill Companies, Barron's Educational Series, 2009.

Meyers, Michael. CompTIA A+ Certification All-in-One Exam Guide, 7th Edition. Mc-Graw-Hill Companies, 2010.

Microsoft Press Staff. Microsoft Computer Dictionary, 5th Edition. Microsoft Press, 2002.

RESOURCES

Employer Advisory Board members

CTE Foundation Standards

<http://www.cde.ca.gov/ci/ct/sf/documents/ctestandards.pdf>

<http://www.cde.ca.gov/be/st/ss/documents/ctestandards.doc>

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COMPETENCY CHECKLIST

TEACHING STRATEGIES and EVALUATION

METHODS AND PROCEDURES

- A. Lecture and discussion
- B. Demonstrations
- C. Individualized instruction
- D. Multimedia presentations

EVALUATION

SECTION A – Orientation and Safety – Pass the safety test with 100% accuracy.

SECTION B – Introduction to Hardware – Pass all assignments and exams on introduction to hardware with a minimum score of 80% or higher.

SECTION C – Computer Math – Pass all assignments and exams on computer math with a minimum score of 80% or higher.

SECTION D – Electricity and Power – Pass all assignments and exams on electricity and power with a minimum score of 80% or higher.

SECTION E – Introduction to DOS 6.2x – Pass all assignments and exams on introduction to DOS 6.2x with a minimum score of 80% or higher.

SECTION F – The Systemboard – Pass all assignments and exams on the systemboard with a minimum score of 80% or higher.

SECTION G – Microprocessors – Pass all assignments and exams on microprocessors with a minimum score of 80% or higher.

SECTION H – Hard Drives– Pass all assignments and exams on hard drives with a minimum score of 80% or higher.

SECTION I – Installing Hard Drives– Pass all assignments and exams on installing hard drives with a minimum score of 80% or higher.

SECTION J – Configuration – Pass all assignments and exams on configuration with a minimum score of 80% or higher

SECTION K – Memory – Pass all assignments and exams on memory with a minimum score of 80% or higher

SECTION L – Monitors – Pass all assignments and exams on monitors with a minimum score of 80% or higher

SECTION M – Multimedia/Peripherals – Pass all assignments and exams on multimedia/peripherals with a minimum score of 80% or higher.

SECTION N – Modems – Pass all assignments and exams on modems with a minimum score of 80% or higher.

SECTION O – Windows 9x – Pass all assignments and exams on Windows 9x with a minimum score of 80% or higher.

SECTION P – Supporting Windows 9x – Pass all assignments and exams on supporting Windows 9x with a minimum score of 80% or higher.

SECTION Q – The Internet – Pass all assignments and exams on the internet with a minimum score of 80% or higher.

SECTION R – Troubleshooting Skills – Pass all assignments and exams on troubleshooting skills with a minimum score of 80% or higher.

SECTION S – Employability Skills – Pass all assignments and exams on employability skills with a minimum score of 80% or higher.

Statement for Civil Rights

All educational and vocational opportunities are offered without regard to race, color, national origin, gender, or physical disability.
