

**COMPUTER TECHNOLOGY MANAGEMENT - Repair, Maintenance & Networking SYLLABUS**

<b>SCHOOL:</b>	Tuscola Technology Center	Instructor:	Amy Schuette
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**COURSE DESCRIPTION:**

*In this class students will learn the basics of computer repair and maintenance and networking. They will focus on hardware, software, computer history, Internet fundamentals, and networking fundamentals. Many opportunities are offered for students to get hands-on experience.*

**COURSE GOALS & OBJECTIVES:**

Keyboarding 40 wpm for 3 minutes with 5 or fewer errors (If unable to attain this speed, student must complete the Micro Type program during the first semester.  
Employability Skills: Resume, Cover Letter, Career Search, Thank-you Letter, Application, Mock Interview  
Telephone Training with help-desk focus  
XHTML and Internet Fundamentals  
Microsoft Access  
Beginning Fireworks and Flash  
Key Train

***The goal of this course is to prepare students for an entry level computer technician career and to pass the CompTIA A+ Certification exam.***

**1. Personal Computer Components**

- *Identify the fundamental principles of using personal computers*
  - *Identify the names, purposes and characteristics of storage devices*
  - *Identify the names, purposes and characteristics of motherboards*
  - *Identify the names, purposes and characteristics of power supplies, for example: AC adapter, ATX, proprietary, voltage*
  - *Identify the names purposes and characteristics of processor / CPUs*
  - *Identify the names, purposes and characteristics of memory*
  - *Identify the names, purposes and characteristics of display devices*
  - *Identify the names, purposes and characteristics of input devices*
  - *Identify the names, purposes and characteristics of adapter cards*
  - *Identify the names, purposes and characteristics of ports and cables*
  - *Identify the names, purposes and characteristics of cooling systems*
  
- *Install, configure, optimize and upgrade personal computer components*
  - *Add, remove and configure internal and external storage devices*
  - *Install display devices*
  - *Add, remove and configure basic input and multimedia devices*
  
- *Identify tools, diagnostic procedures and troubleshooting techniques for personal computer components*
  - *Recognize the basic aspects of troubleshooting theory*
  - *Identify and apply basic diagnostic procedures and troubleshooting techniques*
  - *Recognize and isolate issues with display, power, basic input devices, storage, memory, thermal, POST errors*
  - *Apply basic troubleshooting techniques to check for problems*
  - *Recognize the names, purposes, characteristics and appropriate application of tools*
  
- *Perform preventive maintenance on personal computer components*

- *Identify and apply basic aspects of preventive maintenance theory*
- *Identify and apply common preventive maintenance techniques for devices such as input devices and batteries*

## **2. Laptops and Portable Devices**

- *Identify the fundamental principles of using laptops and portable devices*
  - *Identify names, purposes and characteristics of laptop-specific technologies*
  - *Identify and distinguish between mobile and desktop motherboards and processors including throttling, power management and WiFi*
- *Install, configure, optimize and upgrade laptops and portable devices*
  - *Configure power management*
  - *Demonstrate safe removal of laptop-specific hardware such as peripherals, hot-swappable devices and non-hot-swappable devices*
- *Identify tools, basic diagnostic procedures and troubleshooting techniques for laptops and portable devices*
  - *Use procedures and techniques to diagnose power conditions, video, keyboard, pointer and wireless card issues*
- *Perform preventive maintenance on laptops and portable devices*
  - *Implement software security preventive maintenance techniques such as installing service packs and patches and training users about malicious software prevention technologies*

## **3. Operating Systems**

- *Identify the fundamentals of using operating systems*
  - *Identify differences between operating systems (e.g. Mac, Windows, Linux) and describe operating system revision levels including GUI, system requirements, application and hardware compatibility*
  - *Identify names, purposes and characteristics of the primary operating system components including registry, virtual memory and file system*
  - *Describe features of operating system interfaces*
  - *Identify the names, locations, purposes and characteristics of operating system files*
  - *Identify concepts and procedures for creating, viewing, managing disks, directories and files in operating systems*
- *Install, configure, optimize and upgrade operating systems*
  - *Identify procedures for installing operating systems*
  - *Identify procedures for upgrading operating systems*
  - *Install / add a device including loading, adding device drivers and required*
  - *Identify procedures and utilities used to optimize operating systems*
- *Identify tools, diagnostic procedures and troubleshooting techniques for operating systems*
  - *Identify basic boot sequences, methods and utilities for recovering operating systems*
  - *Identify and apply diagnostic procedures and troubleshooting techniques*
  - *Recognize and resolve common operational issues such as blue screen, system lock-up, input / output device, application install, start or load and Windows-specific printing problems*
  - *Explain common error messages and codes*
  - *Identify the names, locations, purposes and characteristics of operating system utilities*

- *Perform preventive maintenance on operating systems*
  - *Describe common utilities for performing preventive maintenance on operating systems for example, software and Windows updates (e.g. service packs), scheduled backups / restore, restore points*

#### **4. Printers and Scanners**

- *Identify the fundamental principles of using printers and scanners*
  - *Identify differences between types of printer and scanner technologies*
  - *Identify names, purposes and characteristics of printer and scanner components and consumables*
  - *Identify the names, purposes and characteristics of interfaces used by printers and scanners including port and cable types*
- *Identify basic concepts of installing, configuring, optimizing and upgrading printers and scanners*
  - *Install and configure printers / scanners*
  - *Optimize printer performance for example, printer settings such as tray switching, print spool settings, device calibration, media types and paper orientation*
- *Identify tools, basic diagnostic procedures and troubleshooting techniques for printers and scanners*
  - *Gather information about printer / scanner problems*
  - *Review and analyze collected data*
  - *Identify solutions to identified printer / scanner problems*

#### **5. Networks**

- *Identify the fundamental principles of networks*
  - *Describe basic networking concepts*
  - *Identify names, purposes and characteristics of the common network cables*
  - *Identify names, purposes and characteristics of network connectors*
  - *Identify names, purposes and characteristics*
- *Install, configure, optimize and upgrade networks*
  - *Install and configure network cards (physical address)*
  - *Install, identify and obtain wired and wireless connection*
- *Identify tools, diagnostic procedures and troubleshooting techniques for networks*
  - *Explain status indicators, for example speed, connection and activity lights and wireless signal strength*

#### **6. Security**

- *Identify the fundamental principles of security*
  - *Identify names, purposes and characteristics of hardware and software security*
  - *Identify names, purposes and characteristics of wireless security*
  - *Identify names, purposes and characteristics of data and physical security*
  - *Describe importance and process of incidence reporting*
  - *Recognize and respond appropriately to social engineering situations*
- *Install, configure, upgrade and optimize security*
  - *Install, configure, upgrade and optimize hardware, software and data security*
- *Identify tool, diagnostic procedures and troubleshooting techniques for security*
  - *Diagnose and troubleshoot hardware, software and data security issues*
- *Perform preventive maintenance for computer security*
  - *Implement software security preventive maintenance techniques such as installing service packs and patches and training users about malicious software prevention technologies*

	<p><b>7. Safety and Environmental Issues</b></p> <ul style="list-style-type: none"> <li>• Describe the aspects and importance of safety and environmental issues <ul style="list-style-type: none"> <li>○ Identify potential safety hazards and take preventive action</li> <li>○ Use Material Safety Data Sheets (MSDS) or equivalent documentation and appropriate equipment documentation</li> <li>○ Use appropriate repair tools</li> <li>○ Describe methods to handle environmental and human (e.g. electrical, chemical, physical) accidents including incident reporting</li> </ul> </li> <li>• Identify potential hazards and implement proper safety procedures including ESD precautions and procedures, safe work environment and equipment handling</li> <li>• Identify proper disposal procedures for batteries, display devices and chemical solvents and cans</li> </ul> <p><b>8. Communication and Professionalism</b></p> <ul style="list-style-type: none"> <li>• Use good communication skills including listening and tact / discretion, when communicating with customers and colleagues <ul style="list-style-type: none"> <li>○ Use clear, concise and direct statements</li> <li>○ Allow the customer to complete statements – avoid interrupting</li> <li>○ Clarify customer statements – ask pertinent questions</li> <li>○ Avoid using jargon, abbreviations and acronyms</li> <li>○ Listen to customers</li> </ul> </li> <li>• Use job-related professional behavior including notation of privacy, confidentiality and respect for the customer and customers’ property <ul style="list-style-type: none"> <li>○ Behavior</li> <li>○ Property</li> </ul> </li> </ul>									
<p><b>ATTENDANCE POLICY AND GRADE REDUCTION</b></p>	<p>The Tuscola Technology Center places a high priority on attendance because the attendance pattern established by the student in school often sets an attendance pattern for employment. To benefit from the primary purpose of the school experience, it is essential that each student maintain regular and punctual attendance. Class attendance is necessary for learning and academic achievement as well as for developing the habits of <b>punctuality, dependability, and self-discipline demanded by business and industry</b>. Regular attendance in the Technology Center's labs is essential to allow students to fully participate in class instruction, discussion and skill development. Absences beyond eight days per semester are considered excessive. Both excused and unexcused absences are charged in the student total.</p> <p>Absences beyond eight (8) per semester are considered excessive. At nine (9) absences, excused or unexcused, the student's grad will drop 1 full letter grade. At absence 11, 13, and 15, grades will drop one full letter grade for each of those absences. Any grade reduction may be appealed to the Tech Center Administration in writing <b>within two weeks</b> of the end of the semester. The student may have an opportunity to make up the work, with credit, at the convenience of the instructor with the approval of administration.</p>									
<p><b>STUDENT ASSESSMENT</b></p>	<p>Students will earn a grade for each marking period in the course. The grade will be comprised of 15% homework, 20% quizzes, 20% labs, 15% projects, and 30% work habits. Students will be assessed with written and computer based tests and hands-on performance testing.</p> <table border="1" data-bbox="272 1829 1544 1984"> <thead> <tr> <th>Grading Scale:</th> <th>Grade High Value</th> <th>Grade Low Value</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>100</td> <td>93</td> </tr> <tr> <td>A-</td> <td>92.99</td> <td>90</td> </tr> </tbody> </table>	Grading Scale:	Grade High Value	Grade Low Value	A	100	93	A-	92.99	90
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<b>CERTIFICATE REQUIREMENTS</b>	<i>To obtain a Tuscola Technology Center Certificate in the Computer Technology Management Program a student must have eight or fewer absences for the school year, must score at least 80% or higher on the written and applied SCAT test, and have at least a C+ average for the school year.</i>																														
<b>STUDENT CONTRIBUTION</b>	<i>Students are given enough in-class work time to complete most projects and assignments. Students will only be allowed to take text books home in the event of an extended illness, or other teacher approved reason. Students have the opportunity to purchase the TestOut software used in the class at a greatly reduced rate for use on their home computer. They will need a high-speed Internet connection.</i>																														
<b>TEXT &amp; REFERENCE</b>	Computer Service and Repair, Richard M. Roberts Networking Fundamentals, Richard M. Roberts Upgrading and Repairing PC's 14th Edition TestOut Software																														
<b>COURSE SCHEDULE</b>	Students can complete the material for the computer repair course during one full school year. The class will meet every weekday for 2.5 hours during their home schools schedule.  First Marking Period: Keyboarding, Career Planning, Microsoft Access, Fireworks, Flash, XHTML, Internet Fundamentals, Safety Training Second Marking Period: A+ Essentials, Network+ Third Marking Period: A+ IT Technician, Network+ Fourth Marking Period: A+ and Network+ Certification Preparation																														
<b>CERTIFICATIONS AVAILABLE</b>	CompTIA A+ CompTIA Network+ CIW Associate CIW Professional CompTIA Linux+ MOS																														
<b>ARTICULATED CREDIT</b>	Baker College Davenport University Delta College ITT Mott Community College St Clair Community College																														
	<i>The instructor reserves the right to make adjustments to this syllabus as needed.</i>																														