

# Arizona Department of Education

## Career and Technical Education

### Recommended Equipment List

**Program: ELECTRONIC TECHNOLOGIES**

**CIP#: 15.0300.00**

*NOTE: The following items and descriptions are the recommended equipment guidelines for each **CTE Electronic Technologies** program. Please note that this list of recommended items does not necessarily need to be supported financially by Federal Perkins or State Priority funding sources. In many cases, local school district funds are used to purchase items on a regular basis (i.e. furniture, consumables, etc.) Further, please understand that this is not an exhaustive list. Local program and business needs may necessitate the purchase of additional equipment and software resources, as may the rapidly-changing nature of the industry-specific technologies used in the program.*

*Please contact ADE-CTE Program Specialist Tracy Rexroat ([tracy.rexroat@azed.gov](mailto:tracy.rexroat@azed.gov)) if you have questions regarding the appropriateness of any item you are considering for addition to your **CTE Electronic Technologies** program.*

#### Recommended Equipment and Software

Item	Notes
<p>Electronics and Computer Technology Equipment List</p> <p>It is important that students get the hands-on experience that they will need to compete in the workplace. Giving students this real-world readiness is our primary goal.</p> <p>This list is broken into three main courses of study: electronics, computers, and networking.</p> <p>Electronics</p> <p>Students enrolled in electronic classes have the opportunity to work on both traditional and computer based test equipment.</p>	
<p>Traditional workbenches include:</p> <ul style="list-style-type: none"> <li>• Prototyping trainers with built in power supply, audio amplifier and controls</li> <li>• Sencore Analog Oscilloscopes</li> <li>• Sencore Video Signal Generators</li> <li>• Sencore Waveform Analyzer</li> <li>• Analog and Digital Multimeters</li> <li>• Digital, Analog, RF and Audio Signal Generators</li> </ul>	
<p>Computer based test equipment includes:</p> <ul style="list-style-type: none"> <li>• Multisim Computer Based Simulation Software for designing, prototyping and testing electronics circuits.</li> <li>• Labview Computer controlled electronics lab with virtual instrumentation suites.</li> <li>• Labview Computer Based Graphical Programming for customizing instrumentation, data acquisition, and control with PC based hardware to interface circuits and other external hardware.</li> <li>• Labview Computer Based Spectrum Analyzers, Multimeters, Oscilloscopes, Signal Generators, Digital I/O, Analog I/O, Waveform Analysis, etc.</li> <li>• Mathcad for Equation Solving</li> </ul>	

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<p>Specialized Trainers for the following technologies:</p> <ul style="list-style-type: none"> <li>• AM (Amplitude Modulation)</li> <li>• FM (Frequency Modulation)</li> <li>• PM (Phase Modulation)</li> <li>• Microwave Communications</li> <li>• Digital communications</li> <li>• Telephone Communications</li> <li>• Lasers</li> <li>• Digital</li> <li>• Microprocessor Programming</li> <li>• Microprocessor Interfacing</li> <li>• Microprocessor Applications</li> <li>• Power Supply Troubleshooting</li> <li>• Instrumentation</li> <li>• Industrial Control</li> <li>• Fiber Optic Theory</li> <li>• Fiber Optic Cabling</li> <li>• Copper Network Cabling</li> </ul>	
<p>Hardware and Software Computer Lab Equipment :</p> <p>Students, working on labs for computer classes, work on desktop computers equipped with removable hard drives. This allows for easy transitions from one course to the next. For many software classes, each student is assigned their own hard drive for the duration of the course. This greatly facilitates the learning process by allowing a student to continue projects from one session to the next. For hands-on hardware labs, students have the opportunity to take apart and reassemble working desktop computers to gain real world - not simulated - troubleshooting experience.</p>	<p><i>*Computers</i></p>
<p>General Home/Office Networking Lab Equipment:</p> <ul style="list-style-type: none"> <li>• HP Network Printers</li> <li>• D-Link Hubs</li> <li>• D-Link Switches</li> <li>• Panduit Network Cabling Equipment</li> <li>• D-Link Wireless Network Adapters</li> <li>• D-Link Wireless Access Points/Routers</li> </ul>	<p><i>Networking</i></p>

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Cisco Networking Academy Lab Equipment: <ul style="list-style-type: none"> <li>• Cisco 800 Series Routers</li> <li>• Cisco 1700 Series Routers</li> <li>• Cisco 2500 Series Routers</li> <li>• Cisco 2600 Series Routers</li> <li>• Cisco 2500 Series Access Servers</li> <li>• Cisco Catalyst 1900 Series Switches</li> <li>• Cisco Catalyst 2900 Series Switches</li> <li>• Cisco Catalyst 3500 Series Switches</li> <li>• Cisco Catalyst 4000 Series Switches</li> <li>• Cisco PCI 352 Wireless Network Adapters</li> <li>• Cisco Wireless 1200 Series Access Points</li> <li>• Cisco PIX 515 Firewalls</li> <li>• ATRAN's ATLAS 550s for WAN Emulation</li> <li>• Fuke Protocol Analyzer</li> <li>• Fluke Network Inspector</li> <li>• Fluke 620 LAN Cable Meter</li> <li>• Fluke DSP-2000 LAN Cable Analyzer</li> </ul>	

\*Must meet the guidelines for specialized computing equipment as outlined on the "CTE Equipment Guidelines" at [www.azed.gov/cte/grants](http://www.azed.gov/cte/grants)