



- b. Facilities, equipment, technology and materials support and align to curriculum standards and program objectives.

First and foremost, high-quality CTE programs of study are offered in a setting that reflects current industry standards and practices. Facilities should provide students an underlying learning environment that operates as much like the work environment as possible. Equipment and technology used in the program should be reflective of the equipment and technology students would encounter in real jobs in that career area, and students should be exposed to a wide range of materials used in the industry. Not every career field uses heavy equipment or advanced technology, but there are tools and implements that are specific to every industry and should be incorporated into high-quality programs. For example, an early-childhood-education program's facility might look very different than a welding lab—but both should be reflective of the jobs students might pursue and the implements they would use to do those jobs.

However, in addition to being reflective of industry norms, facilities, equipment, technology and materials in high-quality CTE programs of study are also designed and offered to students in ways that facilitate learning and align to the educational objectives of the program. For example, high-quality programs ensure enough space for the number of students enrolled, facilities include areas for instruction as well as demonstration or hands-on practice, and there is enough variety in the types of equipment and materials used to meet broad educational standards, not just prepare students for one specific job.

- c. Facilities, equipment, technology and materials meet federal, state and local standards for occupational safety and health in the related industry, as appropriate.

# FACILITIES, EQUIPMENT, TECHNOLOGY AND MATERIALS

By Alisha Hyslop

**THE LOCATION WHERE INSTRUCTION IS PROVIDED IS AN IMPORTANT COMPONENT OF HIGH-QUALITY** career and technical education (CTE) programs of study. Educational facilities, and the tools and technology in them, are critical to the success of CTE students, and must be aligned to both educational standards and the needs of business and industry. For these reasons, Facilities, Equipment, Technology and Materials is one of ACTE's 12 elements of high-quality CTE within the *Quality CTE Program of Study Framework*.

The Facilities, Equipment, Technology and Materials element of ACTE's quality framework includes six criteria that ad-

dress the alignment, appropriateness and safety of the physical/material components of the program of study, including laboratories, classrooms, computers, industry-specific equipment, and tools and supplies that support learning. The criteria listed below are from the 2018 version of the ACTE *Quality CTE Program of Study Framework*.

## Criteria for Quality Facilities, Equipment, Technology and Materials

- a. Facilities, equipment, technology and materials used in the program of study reflect current workplace, industry and/or occupational practices and requirements.

**d.** Students demonstrate safe and appropriate use and maintenance of facilities, equipment, technology and materials within the program of study.

**e.** Processes are defined and resources provided to regularly inspect, update and replace facilities, equipment, technology and materials.

A critical aspect of facilities, equipment and technology in high-quality CTE programs of study is their safety and upkeep. High-quality programs ensure that all facilities, equipment and technology meet occupational safety and health standards and best practices for their use. This relates to both the way the instructional space is designed and the way equipment and technology is used by students. Resources from national organizations, such as the National Institute for Occupational Safety and Health and the Occupational Safety and Health Administration, can aid in these efforts, and students should be provided direct instruction in the safe and appropriate use and maintenance of relevant equipment, technology and materials.

In addition, in order to ensure continued safety as well as the alignment discussed above, high-quality programs have clear processes to maintain and replace facilities, equipment, technology and materials as needed to ensure a safe and appropriate learning environment.

**f.** The program of study maximizes student access to relevant facilities, equipment, technology and materials through partnerships and flexible delivery models.

Facilities, equipment, technology and materials can be a significant expense for many CTE programs — or there may be space, safety, or other reasons why every facility cannot contain every piece of equipment/technology that might be beneficial for students. High-quality

CTE programs of study look for ways to reduce this expense and provide additional access to relevant equipment and technology for their students in order to offer them the highest-quality experience. These partnerships or flexible delivery models might include utilizing joint facilities with education providers or business and industry, virtual experiences, work-based learning placements, or other creative approaches.

### Success Strategy: Mobile Laboratories

High-quality CTE programs use a variety of creative approaches to maximize students' access to appropriate facilities and equipment. Educators in eastern Wisconsin have joined together in one of these creative approaches: a mobile (CNC) training lab. A collaborative project from Northeast Wisconsin Technical College, Bay Area Workforce Development Board, Wisconsin Job Center, and Lakeshore Technical College, the lab is a 44-foot, self-contained and -powered trailer with two slide-outs to make room for students. It contains computer-integrated technology elements that are not available to students in rural high schools on a regular basis, including a CNC lathe; CNC mill; 13 computers equipped with Mastercam 7, Solidworks and AutoCAD; and an interactive white board. A CNC aide drives the lab to rural high schools in the area to supplement their existing machine-tool programming, and assists high school instructors with teaching the equipment and technology. In addition to regular educational programming, the lab also visits career days, economic summits and other special events to generate interest and career opportunities in related fields. Students in the program at participating high schools can gain hands-on experience on industry-relevant equipment and also have the opportunity to gain dual-

enrollment credit through courses offered using the lab.

### Learn More and Assess Your Programs

Practitioners can turn to ACTE's High-quality CTE Tools online library for resources on the safe and effective use of physical and material components that support student learning. The Facilities, Equipment, Technology and Materials section features case studies on incorporating high-tech tools, flexible facilities and simulated work-based learning into your programs as well as guidelines, curriculum and resources on safety and liability.

In addition, practitioners can use the *Quality CTE Program of Study Framework Self-evaluation Instrument* to assess a single program or multiple programs across a district or institution in relation to Facilities, Equipment, Technology and Materials and all 12 elements of high-quality CTE. The rubric can be completed on paper or online — where users can receive automatically calculated scores, save and print their results, and be connected to the online library for areas identified as needing improvement. ■

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### EXPLORE MORE

High-quality CTE Tools Online Library:  
[acteonline.org/high-quality-CTE](https://acteonline.org/high-quality-CTE)

*Quality CTE Program of Study Framework and Self-evaluation Instrument:*  
[acteonline.org/high-quality-CTE](https://acteonline.org/high-quality-CTE)