

## ***COMPETENCY-BASED EDUCATION: OKLAHOMA'S RECIPE FOR SUCCESS***

### ***BY THE INDUSTRY FOR THE INDUSTRY***

“Helping Oklahomans succeed in the workplace” defines the mission of Oklahoma CareerTech and its competency-based system of instruction. In competency-based education, industry professionals and certification standards identify the knowledge and abilities needed to master an occupation. CareerTech uses this industry input to develop instructional materials that help prepare the comprehensively trained, highly skilled employees demanded by our workplace partners.

### ***TOOLS FOR SUCCESS***

CareerTech relies on three basic instructional components to deliver competency-based instruction:

- (1) Skills standards
- (2) Curriculum, and
- (3) Competency Assessments.

Although each of these components satisfy a unique purpose in competency-based education, they work together to reinforce the skills and abilities students need to gain employment and succeed on the job.

- Skills standards provide the foundation for competency-based instruction in Oklahoma's *CareerTech* system. The skills standards outline the knowledge, skills, and abilities needed to perform related jobs within an industry.
- Curriculum materials contain information and activities that teach students the knowledge and skills outlined in the skills standards.
- Competency Assessments determine occupational readiness by testing the student over material outlined in the skills standards and taught using the curriculum materials.

#### **(1) SKILLS STANDARDS**

##### **A. Uses of skills standards**

Skills standards help Career Tech instructors

- improve program planning,
- track individualized instruction,
- facilitate discussion with local advisory committees,
- perform self-evaluations, and
- evaluate curriculum and instruction.

Skills standards help administrators of Career Tech programs

- identify current job descriptions,
- document industry standards,
- guide program evaluations, and
- anticipate program growth and future challenges.

## **B. Components of skills standards**

### **1. Occupation**

Skills standards are divided into occupations. An **occupation** represents a combination of skills for which education, training, and employment occurs.

### **2. Duty**

Each occupation is further separated into **duties**. A duty defines a major area of job responsibility.

### **3. Task**

Duties contain one or more related tasks. A **task** is a measurable and/or observable unit of work and requires the application of one or more skills.

### **4. Other Skills Standards components describe individual tasks and provide direct linkages to curriculum resources and competency tests.**

- Clarifying information** denotes general topics and subject matter that are specifically associated with an individual task.
- Task codes** identify individual tasks within a duty area and are used to encode all test items referencing that task on the Competency Assessment.
- Frequency Ratings** represent how often the task is performed on the job; **Criticality Ratings** denote the importance of performing the task correctly. Although rating scales may vary among occupations, *CareerTech* typically uses a rating scale from 1 to 3. A frequency rating of “3” indicates the task will likely be executed at least once daily, while a criticality rating of “3” signifies that it is extremely important that the task be performed correctly. Conversely, a “1” rating indicates the task will be performed less than once weekly or that it is only slightly important that it be performed correctly.
- Curriculum crosswalks** list commonly used curriculum resources and reference tasks to specific curriculum units within those resources. Crosswalks also provide a concise way to evaluate how the skills standards encompass national skills standards and/or prepare the student for industry and/or professional certifications.

### **C. Where Do Skills Standards Come From?**

Once the need for instructional materials for an occupational area has been determined, CareerTech researches existing industry materials and develops trial skills standards. A panel of industry experts and educators from across the state convenes and reviews the trial skills standards. The trial skills standards serve only as a starting point; the industry committee changes the document to more accurately reflect the skills and abilities demanded in the workplace.

During the validation process the committee reviews and refines every aspect of the skills standards. Individual tasks, duty areas, and entire occupations can be added, deleted, rephrased, or reorganized to reflect actual occupational expectations. Whenever possible, the committee incorporates and/or aligns the skills standards to industry-recognized standards or certification requirements.

Once the industry committee validates the organization and content of the skills standards, it assigns Frequency and Criticality Ratings to the individual tasks. This step solidifies industry's "mark" on the skills standards, since these ratings drive competency assessment development.

Finally, instructors and program specialists receive in-service training on using the skills standards document and the publication becomes available for distribution.

### **D. Benefits of skills standards**

Skills standards offer the direct benefits of providing a roadmap for training *CareerTech* students in Oklahoma and verifying that instruction addresses industry needs. This statewide initiative to "train to the skills standards" brings indirect benefits to all partners in the training process.

Skills standards committees include industry professionals from a diverse group of companies and organizations located across the state. This committee defines a set of skills and abilities that is based upon the expectations of the industry as a whole, rather than those of one company. Skills standards are aligned with national skills standards; therefore, a student trained to the skills standards possesses technical skills that make him/her employable in both state and national job markets.

The consistency of programs on a statewide basis further benefits students by increasing their portability between programs and enhancing their ability to secure college credit for training in a career and technology education program.

Industry can tap into a statewide pool of highly qualified, occupationally competent applicants trained to its specifications. Businesses can hire completers of career and

technology programs with confidence in their technical skills and abilities, regardless of where in Oklahoma the student received training.

Training to the skills standards enables local programs to prepare students for a statewide job market without sacrificing the flexibility to customize training efforts that satisfy the needs of the businesses in the communities they serve. Local programs truly become the catalysts for success by both preparing Oklahomans for technical careers and meeting the demands of Oklahoma industries for highly skilled employees.

## **(2) CURRICULUM**

Curriculum materials provide the means to *CareerTech*'s end: training students for career success. Curriculum materials facilitate instruction of skills and knowledge necessary to master an occupation to industry standards. In addition to complementing classroom instruction, curriculum resources provide supplemental activities to enhance learning and provide hands-on training experiences.

In occupational areas, the Skills Standards serve as a guide for identifying curriculum materials and are used by *CareerTech* instructors and specialists to select or develop materials for use in the classroom. CIMC serves as the instructional materials superstore for Oklahoma's *CareerTech* system and, with the help of program specialists and administrators, determines the need for new development based upon the availability of existing products and the potential market for the new product.

Development of instructional materials begins with the Skills Standards. Business and industry professionals, subject matter experts, and instructors create an instructional analysis on which the curriculum will be based. This analysis facilitates the development of learning objectives, and curriculum satisfying these objectives is written. In draft form, curriculum materials undergo a validation process by business and industry to verify content and instructional flow. Finished curriculum products are in-serviced and available for purchase through CIMC.

While most products are print-based, CIMC delivers curriculum products using a variety of media. A comprehensive collection of videotape titles compliments CIMC's printed materials. Products utilizing computer-based and web-based training are also developed for use in *CareerTech* programs.

## **(3) COMPETENCY ASSESSMENTS**

Competency assessments bring the process of competency-based education full circle. Skills Standards define the skills required for occupational success; competency assessments are summative assessments that measure how well the student has mastered these skills.

Competency assessments alone are not adequate indicators of competence and should be used with other measures of performance to determine occupational readiness.

Analysis of group results of competency assessments also offers meaningful feedback to educators seeking to evaluate instructional effectiveness. Item analysis provides information about individual test items that is used to improve and revise the test.

## **1. Test Development**

Competency assessments are the results of an extensive development process that is based upon frequency ratings, criticality ratings, and the number of clarifying information items. These three values provide an objective, mathematical way of determining the number of items on the competency test and developing a plan to assess the mastery of skills and abilities outlined in the Skills Standards.

Once a test plan is developed, CareerTech contracts with instructors to write test items. The test item writer refers to commonly used curriculum materials and other instructional resources for question content.

All test items on CareerTech competency assessments are objective-based and in multiple-choice format. Objective-based test items pertain to an important aspect of knowledge or skill. Multiple-choice questions present a question or incomplete statement in the item stem and four options as possible answers. The key is the only correct option; the other three are known distracters.

After all test items have been written, a committee of instructors and industry professionals review the test and carefully scrutinize individual test items. Specifically, the committee ensures each question satisfies the content and structure guidelines and verifies that the answer for each question has been identified correctly on the test key.

Upon completion of the development process, the test becomes available for testing students who have completed training and passed all performance assessments for that occupation.

## **2. Delivery**

Every comprehensive high school and technology center that offers career and technology education programs designates a Testing Liaison to serve as that site's contact person for all competency assessment matters. Testing Liaisons administer competency assessments to students in both paper- and web-based format and maintain the security of tests and the online testing system. In addition to

administering competency assessments to students, Testing Liaisons also communicate assessment results to instructors.

CareerTech provides annual training to Testing Liaisons and regularly distributes a newsletter that includes updates on testing policies and procedures, new testing products, and other testing issues.

### **3. Results and Analysis**

Results letters communicate competency assessment scores to students and provide a breakdown of assessment results by duty area. The results breakdown shows how well the student has mastered skills needed to perform major job functions and identifies areas of job responsibility that may require additional instruction and/or training.

Students who score 70% or greater on the test attain competency in the occupation tested and receive a certificate noting their accomplishment. This certificate not only identifies the occupation in which competency was attained, but also lists industry and supplemental certifications the student has received. Students who do not attain competency receive additional training in areas of deficiency and can retest once remediation is complete.

Group analysis of student results also provides feedback to instructors seeking to improve the effectiveness of career and technology training. Performance patterns in individual duties indicate opportunities to evaluate training methods and customize instruction.

Item analysis enables CareerTech to improve competency assessment products by providing feedback on the performance of individual test items. This analysis summarizes data from test takers across the state and enables the test review committee to more closely examine and update the test items during the annual review process.

### **Alternate Tests and Supplemental Certifications**

Alternate assessments are the **only** approved substitution for CareerTech-developed competency assessments. These assessments include industry certification or licensure examinations that have been determined to match the skills and abilities outlined in the Skills Standards. The Testing Division maintains a current list of alternative assessments that may be taken in lieu of competency assessments.

Supplemental certifications may be included in the individual student's portfolio to highlight additional skills and accomplishments. Supplemental certifications do not assess readiness in all areas included in the Skills Standards and **are not** suitable substitutes for assessments developed by CareerTech.

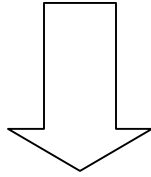
### **Competency Assessments and Completion Definitions**

Competency Assessments indirectly affects the follow-up reporting required of all career and technology programs in Oklahoma. Students must have passed at least one competency assessment or alternate assessment in order to qualify as either an occupational completer or a program completer.

The chart on the following page summarizes the development process and key features of competency-based instructional materials.

# OKLAHOMA'S RECIPE FOR CAREERTECH SUCCESS

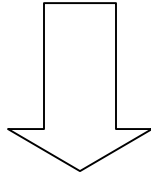
## Certification and/or Industry Standards Input from Industry Employers



Skills  
Standards

### ***Skills Standards:***

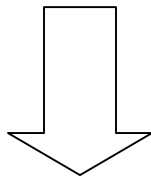
- *Based on certification standards and industry input*
- *Documents industry standards*
- *Provides basis for program planning and evaluating curriculum and instruction.*



Curriculum

### ***Curriculum:***

- *Based on Skills Standards*
- *Facilitates instruction of skills and knowledge necessary to master an occupation to industry standards*
- *Provides supplemental activities to enhance learning and hands-on training experiences.*



Competency  
Assessments

### ***Competency Assessments:***

- *Measure occupational readiness of students*
- *Provide feedback for evaluating instructional effectiveness.*