



# Wisconsin Technical College Student Skill Assessment

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## Overview

Effective assessment of learning (skill attainment) is data-driven evaluation that is actively used for continual improvement of teaching and learning. It requires informed judgments, about achievement of intended learning outcomes, which are:

- ✓ Based on evidence of what students can do and their capacity to apply what they know (data) at the completion of the learning experience (course, certificate, program, or other credential)
- ✓ Valid, reliable, and fair
- ✓ Built into the plan for teaching

The Wisconsin Technical College System's (WTCS) commitment to assessment has deep roots. Many of the sixteen colleges that make up the system began moving to outcomes-based learning and assessment in the mid-1970's. In 1993, as a central goal of the Worldwide Instructional Design (WIDS) project, the colleges collaboratively developed the WTCS model for designing and assessing learning.

The model has continually evolved since its inception and is a synthesis of proven and emerging principles for assessing learning outcomes. By working within the model, educators design learning and assessment that contribute to fulfilling four purposes: establishing and communicating intended learning outcomes, assessing and documenting skill attainment, offering learning and teaching strategies, and credentialing the quality and results of college offerings and individual student skill attainment.

Educators, and others who are accountable for the effectiveness of education, along with those who rely on the results of our educational processes and systems, are placing increased emphasis accountability for educational outcomes.

This increased emphasis on accountability has given rise to several drivers that are compelling educators to increase the rigor of learning assessment. Though accreditation and requirements of legislation such as Carl Perkins IV are significant, the most compelling driver is the continuous improvement of teaching and learning.

Carl Perkins IV reauthorizes the Carl Perkins III Act passed in 1998. “The purpose of this Act is to develop more fully the academic and career and technical skills of secondary education students and postsecondary education students who elect to enroll in career and technical education programs, . . .” [Carl D. Perkins Career and Technical Education Improvement Act of 2006]

Perkins IV calls a new level of accountability in the assessment of skill attainment at the postsecondary level. Wisconsin Technical College System leaders are taking proactive measures to meet the requirements laid out in the Carl Perkins IV legislation. This purpose of this white paper is to describe these measures and to provide the basis for planning and for conversations about their implementation.

## Standards for Assessment of Career and Technical Skill Attainment

Student attainment of career and technical skills is identified as a core postsecondary indicator in Carl Perkins IV. In May 2007, federal staff from the Office of Vocational and Adult Education (OVAE) described three categories of assessments that will govern how states establish measurements for career and technical skill attainment – the Gold, Silver, and Bronze Standards.

Because the labels Gold, Silver, and Bronze imply a hierarchy that is inconsistent with WTCS model and standards for assessment of learning, the Wisconsin Technical College System (WTCS) defines these assessment categories as **WTCS Assessment Standards**, **External Assessment Standards**, and **Indirect/Local Assessment Standards** as follows:

**WTCS Assessment Standards:** WTCS approved and developed assessment that objectively measures student attainment of industry-recognized skills upon graduation. Options may include:

- WTCS-developed, and locally implemented assessment
  - ✓ Linked to industry standards -- either a series of end-of-course assessments or a single end-of-program assessment
  - ✓ Meet state criteria including validity, reliability, and fairness guidelines

### What are the drivers of assessment?

#### 1. Learning & continuous improvement of teaching and learning

2. **Accreditation** (Ex. Regional Associations – MSA-CHE, NCA-HLC, NEASC, NWCCU, SACS, WASC; Professional Groups – ABET, ACCE, NCATE, NLN; Industry – ANSI, DAS, NATEF, NFPA)

#### 3. Carl Perkins IV

- Locally-developed and implemented assessment
  - ✓ Approved by Industry/advisory committee
  - ✓ Meet state criteria including validity, reliability and fairness guidelines

**External Assessment Standards:** External, third-party assessment that objectively measures student attainment of industry recognized skills upon graduation:

- National/international credentialing or certification assessment (e.g., ASE, NCLEX certification)
- State credentialing or licensing assessment (e.g., cosmetology, veterinary technician)
- Industry developed assessment for occupations/specialties (e.g., Certified Executive Chef)
- WTCS-developed, and implemented, assessment tied to industry standards -- either a series of end-of-course assessments or a single end-of-program assessment.

**Indirect/Local Assessment Standards:** Non-approved assessments or non-assessment related indicators of technical skill attainment of graduates. Options may include:

- GPA
- Program completion/graduation rate
- Course completion/Pass rate
- Exams that are not externally approved

## Establishing Assessment Standards for WTCS Programs

There are 349 approved programs with students enrolled in the Wisconsin Technical College System. Each program will be classified as meeting **WTCS Assessment Standards**, **External Assessment Standards**, or **Indirect/Local Assessment Standards** according to the level of documented assessment.

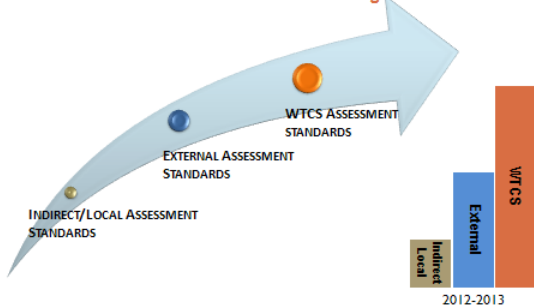
The Wisconsin Technical College System will develop a set of criteria for classifying a program as meeting **WTCS Assessment Standards**. The basis for the criteria will be to assure that the assessment process used is indeed valid, reliable, and fair. Each college will establish a **WTCS Assessment** process for all programs. The recommended tool for documenting the assessment process is WIDS.

A program will be classified as meeting **External Assessment Standards** when the WTCS Education Director and the WTCS Performance Measurement Director agree that a third party assessment is in place; that the assessment objectively measures the exit learning outcomes; and that it addresses all skills required for the occupation. For a given program, WTCS Assessment Standards or a combination of WTCS Assessment and External Assessment may better address the overall occupational skills.

Programs that do not meet the criteria for WTCS Assessment Standards or External Assessment Standards will be classified as meeting the **Indirect/Local Assessment Standards**. Programs at this level analyze indirect measures such as GPA, course completion, program completion/graduation, placement, and graduate/employer follow-up data. Many programs that assess at the Indirect/Local level assign grades based on teacher-developed exams that may not meet WTCS Assessment Standards.

**Carl Perkins IV - The New Law**

WTCS will move toward a balance of WTCS Standards and External Standards for assessment of learning outcomes.



All WTCS programs currently assess at the Indirect/Local Level or higher as documented through the WTCS Quality Review Process (QRP). QRP supports the evaluation of educational programs, apprenticeships, basic and general education as well as student services. The System Office and colleges began a collaborative process of transitioning program evaluation requirements in the spring of 2001. The foundation of the QRP is a Continuous Improvement Process (Plan, Do, Check, Act).

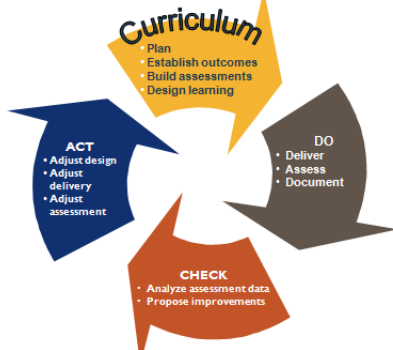
The WTCS will continue to use Indirect/Local Assessment as programs transition to the WTCS Assessment Standards and/or External Assessment Standards. Currently course completion with a grade of C or better for all courses attempted over the three year tracking period is used to follow a cohort.

**WTCS colleges offering programs classified as Indirect/Local will take action to move assessment practices to meet WTCS Assessment and/or External Assessment Standards by FY 2012-2013.**

**WTCS Model for Assessment of Skills**

The Wisconsin Technical College System operates on an outcome-based model for curriculum development and documentation using the Worldwide Instructional Design System (WIDS) model, process, and methodologies. The WTCS developed WIDS in collaboration with the

Assessment Process and Curriculum



Wisconsin Technical College System Foundation (WTCS Foundation), in order to support initiatives to actualize Learning College Principles (Terry O'Banion) and learning design components of Continual Quality Improvement initiatives. The WTCS model, process, and methodology, along with the WIDS tools, are used by some 150 organizations worldwide (over 100 community and technical colleges in the United States and Canada).

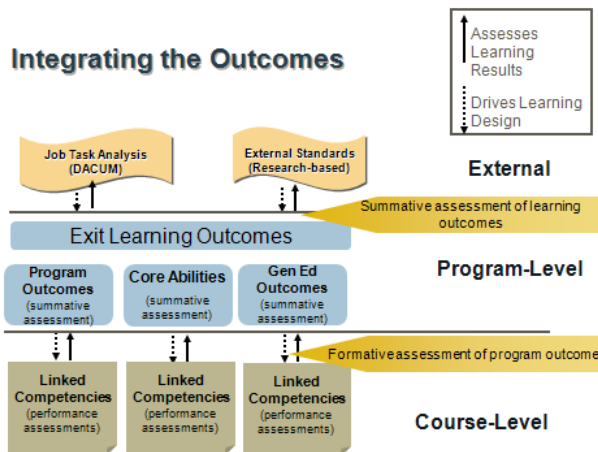
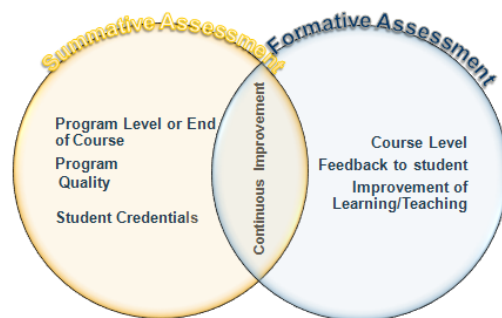
Success in fulfilling a higher learning mission involves many dimensions. Even though curriculum is just one component of teaching and learning, the quality of the curriculum significantly influences the quality of learning.

The Wisconsin Technical Colleges recognize the importance of designing performance expectations and assessments that are grounded in industry. The WTCS uses external standards and occupational analyses such as those developed through the DACUM process as the basis for establishing learning outcomes and designing assessment at the program and course-levels. Industry-based advisory committees provide on-going guidance to the development and operation of every WTCS program in each college.

In the WTCS model, program outcomes and course-level competencies are derived from and linked to a valid, researched external standards or industry duty/task lists obtained through occupational analysis. WIDS Software provides mechanisms to *link* occupational tasks, external standards, and program outcomes to course-level competencies and assessments. This documents alignment of the learning and assessment with industry standards.

The model calls for assessment that requires critical thinking, problem-solving, decision-making, and performance, and it limits the use of lower-level testing of knowledge to short-term formative feedback. The use of rubrics, checklists, and scoring guides is central to the validity, reliability, and fairness of assessment. The WTCS model recognizes the importance of both summative and formative assessment.

Summative/Formative Assessment



The WTCS model differentiates between varying levels of learning outcomes. Program Outcomes are *measurable, observable, field-specific* skills to be mastered by learners completing a program or major course of study. A specific group of program outcomes pertains to an entire program or major. Program outcomes are addressed within the context of courses. Competencies define performance expectations at the course level. Course competencies are derived from, and

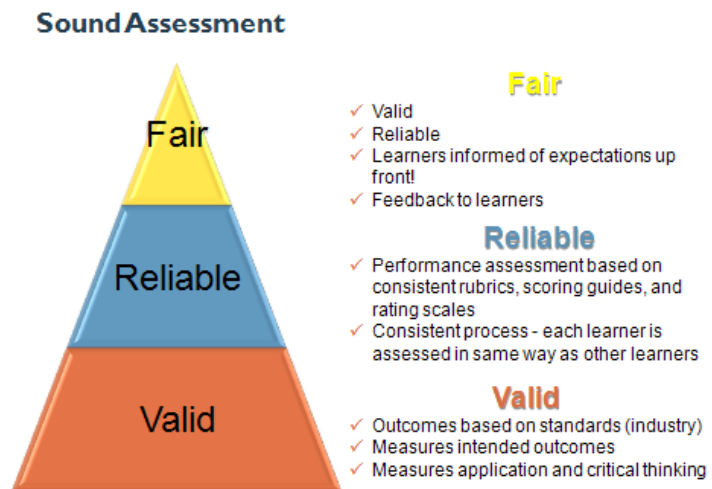
linked to program outcomes, to ensure that the program outcomes are taught and assessed across the courses that make up a program. While program outcomes are learned and assessed

in a course or across a series of courses, they are also assessed with a summative assessment process.

Summative assessments provide cumulative evaluation of intended learner outcomes at the end-of course or program-level, and are used to verify a learners' attainment of exit-learning outcomes.

Validity, reliability, and fairness are critical components of the WTCS model for assessment of skill attainment.

The model requires valid assessments that measure intended learning outcomes derived from external standards and occupational analysis, and that require application and critical thinking. In the WTCS model, authentic assessments are emphasized because they engage learners in applying knowledge and skills in the ways they are used in the "real world." Authentic assessments are better predictors of the learners' abilities to transfer what they learn to their careers and other life roles.



Reliable assessments are based on predetermined performance criteria and the use of rubrics, checklists, or scoring guides that assure consistency among raters and among learners. They are criterion-referenced to consistent standards, giving each learner a fair opportunity to succeed. Equity provides the most compelling reason for insisting on reliability in assessment. Not far behind is the necessity of maintaining the integrity of learning credentials.

The WTCS model strives for fairness in assessment through the development of valid assessments with built-in reliability. In addition, the model encourages faculty and staff to inform learners about performance expectations upfront; vary assessment strategies and tools; help learners assemble artifacts; provide feedback to learners regarding their performance; and to establish a non-biased, positive assessment environment.

The WTCS is implementing the use of the WTCS model and the WIDS Software tools to document how WTCS colleges assess learning outcomes. Though implementation is still a "work-in-progress", this approach is building the foundation for full realization of a best-practice model of assessment of skill attainment called for in the Carl Perkin IV legislation.

## Appendix One – What is WIDS?

### Background

WIDS is a multi-faceted learning design system that features an outcomes-based, learning-centered design model, curriculum authoring software tools, and professional development available in print, CBT, online learning, and face-to-face formats. Teachers and other educational leaders who work in community and technical colleges developed WIDS for use on the frontlines of teaching and learning.

WIDS provides the tools for developing a learning and assessment framework. It helps colleges document how organization, program, and course-level learning outcomes are connected, and communicate performance expectations to learners, teachers, community members, and other stakeholders.

The Wisconsin Technical College System (WTCS) developed WIDS in collaboration with the Wisconsin Technical College System Foundation (WTCS Foundation) – a 501(c)(3) not-for-profit corporation, in order to support initiatives to actualize Learning College Principles (Terry O’Banion) and learning design components of Continual Quality Improvement initiatives.

The WTCS Foundation’s WIDS Division is responsible for providing technical and instructional design support for WIDS and for continually improving the model, software, and professional development components of the system to ensure that they align with proven research and best practice. In addition, the WIDS Division disseminates the WIDS software, model, methodology, and professional development to educational organizations throughout the world on behalf of the Wisconsin Technical College System. Revenues from the sale of WIDS products and services are used to cover the cost of operations and to reinvest in the enhancement of the system.

Community and technical colleges in 33 states and 10 foreign countries use WIDS to provide a consistent model for learning design and the tools to turn the model into curriculum components that work where students and teachers meet to make learning happen.

### The WTCS WIDS Model

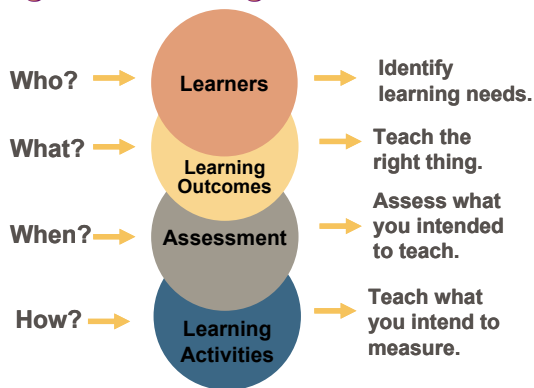
The model makes sense to educators because it integrates current learning theory and practice into a practical model that brings together critical elements of performance-based design. In line with strategic planning, the WIDS Model guides teachers and designers to design from the inside out. In other words, what they intend to achieve drives how they approach the task.

The model infuses broad, transferable skills called core abilities (skills like communication, problem-solving, and critical thinking) into occupational and discipline-specific instruction.

Flexibility within the model makes it adaptable to varied instructional intents and missions – both academic and technical.

Emphasizing results, the WIDS model recognizes three performance levels. The broadest level incorporates exit learning outcomes, such as program outcomes, general education outcomes, and core abilities – skills all successful individuals need regardless of occupation or life roles. At the next level, competencies describe major discipline or occupationally specific skills. Each competency is clarified by performance standards specifying criteria and conditions for assessment. Learning objectives are the enabling instructional outcomes. They describe the lower level, supporting knowledge, skills, and attitudes needed to master a given competency.

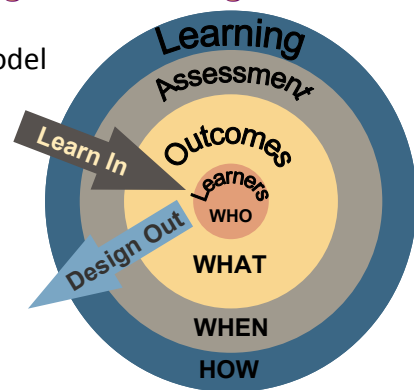
### Aligned Learning Model



WIDS offers a model for strategic planning of learning and assessment. After setting learning goals—"what"; establishing criteria for determining "when"; teachers or designers plan strategies for—"how." These questions serve as a guide through a logical process that leads to effective teaching and learning.

From the learner's point of view, however, learning moves from the outside in. The learners begin with the "how" and aim for the "what" like a target. The WIDS Model requires teachers to provide learners with precise information about performance expectations at the beginning of a learning experience. As a result, learners set out with a clear vision of the requirements for successful completion.

### Aligned Learning Model





## Appendix 2 Comparing Performance-Based Practices with Traditional Norm-Referenced Practices

Component	Outcomes-Based Learning	Norm-Based Instruction
<b>WHO</b>	<ul style="list-style-type: none"> <li>•Learners (Design centers on what and how learners will learn—i.e., outcome)</li> </ul>	<ul style="list-style-type: none"> <li>• Teacher (Design often centers on what the teacher will do—i.e., input)</li> </ul>
<b>WHAT</b>  <i>What will learners learn?</i>	<ul style="list-style-type: none"> <li>•Based on occupational analysis, standards, and needs analysis</li> <li>•Emphasizes application of knowledge, skills, and attitudes</li> <li>• States measurable, observable learning targets</li> <li>•Shares intended outcomes with learners up front</li> <li>•Focuses on what learners can do upon successful completion of learning experiences</li> </ul>	<ul style="list-style-type: none"> <li>• Based on textbooks, course outlines, faculty interest/ expertise</li> <li>• Results from teacher</li> <li>• Emphasizes facts, information</li> <li>• Rarely shares intended outcomes with learners up front</li> <li>• Centers on chapters and units</li> <li>• Focuses on covering the material</li> </ul>
<b>WHEN</b>  <i>How will you know when learners have learned?</i>	<ul style="list-style-type: none"> <li>•Relies on performance (demonstration) of the application of skills, knowledge, and attitudes</li> <li>• Focuses sharply on stated exit learning outcomes and competencies</li> <li>•Measures achievement according to performance standards (pre-stated criteria and conditions)—criterion referenced</li> <li>• Demands the satisfactory performance of each exit learning outcome and competency</li> <li>• Allows learners to progress only when outcomes are mastered</li> <li>• Holds learners and teachers accountable for achievement of intended outcomes</li> </ul>	<ul style="list-style-type: none"> <li>•Relies heavily on paper/pencil testing</li> <li>• Focuses evaluation on retention of information and facts</li> <li>• Often involves ambiguity about what will be evaluated</li> <li>•Features norm-based grading (grading on a “curve” or relative to peer achievement)</li> <li>•Allows for averaging of grades so that unsatisfactory performance in one area can be offset by a high rating in another</li> <li>•Often based on “seat time” (learners progress when they have logged “enough” time)</li> </ul>
<b>HOW</b>  <i>How will learners develop skills, knowledge, and attitudes?</i>	<ul style="list-style-type: none"> <li>•Features learner-centered activities</li> <li>•Places learners in an active role</li> <li>• Offers varied learning activities for varied learning styles</li> <li>•Provides benchmarks and periodic feedback with opportunities for learners to improve performance</li> <li>•Clearly ties learning activities to intended outcomes</li> </ul>	<ul style="list-style-type: none"> <li>•Relies primarily on teacher to “deliver” instruction</li> <li>•Places learners in a passive role</li> <li>•Often offers little variety in learning style</li> <li>• Provides few benchmarks and little periodic feedback</li> <li>•Lacks clear connections between learning activities and intended outcomes</li> </ul>

## Appendix Three – Program Outcomes and Assessment

### Why write program outcomes?

- Demonstrate outcomes for continuing improvement and accountability assessment
- Communicate performance expectations to constituents (students, other teachers, administrators, accrediting bodies etc.)
- Communicate program results for marketing purposes
- Provide a common thread to ensure the program is more than a cluster of courses
- Identify “holes” or skill gaps in program

### What do program outcomes look like?

Program outcomes:

- Describe a macro (major) occupational or discipline specific skill expected of all program graduates
- Are validated by industry (through external standards and/or advisory committees)
- Are supported by multiple competencies
- Are threaded throughout courses
- Number 5-7 per program
- Begin with a single action verb (application level or above)
- Are measurable and observable



### Where do program outcomes come from?

- DACUM
- Accrediting Agencies
- National (or other) Skill Standards
- Advisory Committees

### What do teachers do with program outcomes in WIDS?

- Teachers link courses to program outcomes (either meet the outcome or make progress toward)
- Teachers can also link individual course competencies to program outcomes

### What do administrators do with program outcomes in WIDS?

- Aggregate data in a matrix to show where program outcomes are met across courses in a program using **WIDS Analyzer**.
- Create portfolio worksheets

## Appendix Four- Using WIDS to Design for Assessment

### Design. Align. Document.

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1. CREATE WIDS Program Design files for all programs
2. DEVELOP exit learning outcomes
  - Core Abilities ● Program Outcomes ● General education Outcomes (optional)
3. DETERMINE summative assessments
  - Driven by industry standards
  - Use dropdowns or write your own
4. DEFINE criteria for summative assessments
  - Describe required results for each outcome
  - If desired, build the basis for the rubric or checklist used to evaluate the summative assessment tool
5. LINK courses to exit learning outcomes
  - Using Program Design Course List
  - Using WIDS Course files

#### Using WIDS Learning Design

6. CREATE Performance Assessment Tasks (with scoring guides and rubrics) to support summative assessments
  - Embed in existing course files using the Program File as the master file (library)
  - Create in separate Summative Assessment Course file for program

#### Using WIDS Analyzer

7. GENERATE WIDS Analyzer reports
  - Learning Outcomes Matrix
  - Program Course List Matrix
  - Assessment Task Outcomes Matrix