

# *Introduction to* **STACKABLE CREDENTIALS**

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# Introduction

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## The Case for Stackable Credentials

The efforts of postsecondary institutions to embed “stackable” credentials aligned with industry requirements into certificate and degree programs are helping students progress along the education continuum while earning credentials with labor market value. By organizing programs around credentials that build upon each other, colleges can offer incremental milestones on the path to degree completion. A program that combines stackable credentials with opportunities to earn credit for prior learning provides multiple entry points into a college program. This ensures students who have gained knowledge and skills through work experience, military service, or informal education have access to postsecondary education and can receive credit for competencies mastered prior to entering college. Such a program can also provide multiple exit points, thus acknowledging that many students will have their educational pathway interrupted and are therefore best served by programs that allow them to exit with a workplace-relevant credential, and reenter to continue along the pathway at a later time. Consider stackable credentials as building blocks for industry-informed career pathways that maximize learners’ skill acquisition, investment of time and financial resources, and employability. As learners complete credentials aligned to in-demand skills and employment opportunities, they can also secure entry-level employment in their chosen career fields while continuing their education.

A program of study embedded with stackable credentials helps meet the needs of employers, students, and communities. Stackable credentials:

- Provide **flexibility for students** who must balance work and family demands while furthering their education, or who may be uncertain about committing to a full degree program.
- Meet the **evolving skill needs of employers**, among both new hires and current workers.
- Improve the ability of colleges and communities to **increase postsecondary credential attainment**, especially among underserved populations.
- Give colleges tools for **addressing technology advancements** that are requiring more education and training at all levels of employment.



“A program of study embedded with stackable credentials helps meet the needs of employers, students, and communities.”

While stakeholders reap many benefits from the stackable credentials approach, this program design strategy calls for community colleges to:

- Engage often and at deeper, more complex levels with business and industry to identify current and future workforce needs;
- Facilitate job skills validation by employers to ensure that a program's instruction and work-based learning experiences prepare learners for in-demand employment opportunities;
- Identify and embed preparation for employer-valued industry certifications within a program;
- Develop career pathway maps that identify multiple entry and exit points and demonstrate the alignment of college and industry credentials with workplace needs; and
- Offer course delivery options that are flexible and responsive to the needs of diverse learners.

## Understanding Stackable Credentials Within a Career Pathways Framework



The word “credential” is an overarching term associated with a broad range of awards, including degrees, badges, certifications, and micro-credentials. A **credential** is considered stackable when it is part of a sequence of industry-recognized credentials that can be accumulated over time to demonstrate an individual’s expanded knowledge and competencies, help him or her advance within a career pathway, and enable the learner to earn family-sustaining wages. A number of states have developed systems for evaluating or recognizing these credentials, although the growing number of non-degree credentials may confuse students and employers without a method for determining a credential’s value or validity. The Credential Engine is one of several recent efforts championing responsible credential innovation and transparency. Credential Engine’s registry offers information about the relative value of a given credential by providing meta-data about the organization that awards it and any related third-party validation.

This publication focuses on the accumulation of stackable credentials with the goal of degree attainment (associate's, bachelor's, and advanced degrees). To earn credentials on the pathway toward a degree, learners can pursue a range of non-degree credentials that have value in the labor market. Below are descriptions of common awards associated with non-degree credentials.

- The term “**certificate**” can have multiple meanings, in that some institutions issue a certificate upon the completion of a single class, other institutions issue certificates when students complete a pre-determined group or series of classes. Certificates are awarded upon completion of a course of study; certifications are the result of an assessment demonstrating skill mastery.
- An **industry certification** is typically awarded to an individual by an industry body, business, or trade association when that person demonstrates knowledge and skills, typically via examination (including hands-on demonstrations), based on industry standards.
- An occupational or professional **license** is a credential awarded by a State or federal agency when an individual has completed a pre-determined number of hours of education and/or demonstrates knowledge and skills in a specific occupation by way of an examination; a license is time-limited and must be renewed through continuing education, reapplication, and/or payment of fees.
- An individual becomes a **journeyperson** when they complete an **apprenticeship program**. An **apprenticeship** offers a structured workplace-based education program that includes classroom as well as hands-on education and training, based on industry and occupational standards. Apprenticeships pay individuals' wages for the time they spend in the workplace, and often for the time they spend in the classroom.

Stackable credentials are an integral component of career pathways, as highlighted in the graphic on page 5. Three federal laws supporting workforce development and career preparation—the **Workforce Innovation and Opportunity Act (WIOA)** (29 U.S.C. § 3102(7)), the **Carl D. Perkins Career and Technical Education Act of 2006, as amended by the Strengthening Career and Technical Education for the 21st Century Act (Perkins V)** (20 U.S.C. § 2302(8)), and the **Higher Education Act** (20 U.S. Code § 1091(d)(2)), define “career pathway” in the same way, as follows—



**A combination of rigorous and high-quality education, training, and other services that:**

- Aligns with the skill needs of industries in the economy of the State or regional economy involved;
- Prepares an individual to be successful in any of a full range of secondary or postsecondary education options, including apprenticeships registered under the National Apprenticeship Act;
- Includes counseling to support an individual in achieving the individual's education and career goals;
- Includes, as appropriate, education offered concurrently with and in the same context as workforce preparation activities and training for a specific occupation or occupational cluster;
- Organizes education, training, and other services to meet the particular needs of an individual in a manner that accelerates the educational and career advancement of the individual to the extent practical;
- Enables an individual to attain a secondary school diploma or its recognized equivalent, and at least one recognized postsecondary credential; and;
- Helps an individual enter or advance within a specific occupation or occupational cluster.

While a career pathway is designed to enable an individual to continue along pre-determined educational sequences to achieve higher-level skills and competencies in an occupation or field, stackable credentials represent milestones along the pathway that provide validation to employers of an individual's mastery of specific competencies. These milestones should be used in the assessment of retention and completion rates for students who do not complete a degree program during continuous enrollment. Because these credentials provide evidence of skill attainment in areas aligned to industry needs, stackable credentials enable adult learners to pause their participation in a pathway while still realizing educational value and employment opportunity for the portion of the pathway that they completed. Community colleges are uniquely positioned to take advantage of the opportunities afforded through *WIOA* and *Perkins V* to develop career pathways that incorporate stackable credentials, better preparing all learners for future career success.

# Pathways to Career Readiness and Advancement

*Programs of Study* and *Career Pathways* share many of the same attributes. The two terms are used interchangeably in many state and local applications. Both are defined in Federal Law.

A **CAREER PATHWAY** is a combination of rigorous, high-quality education, training, and other services.

Attributes:

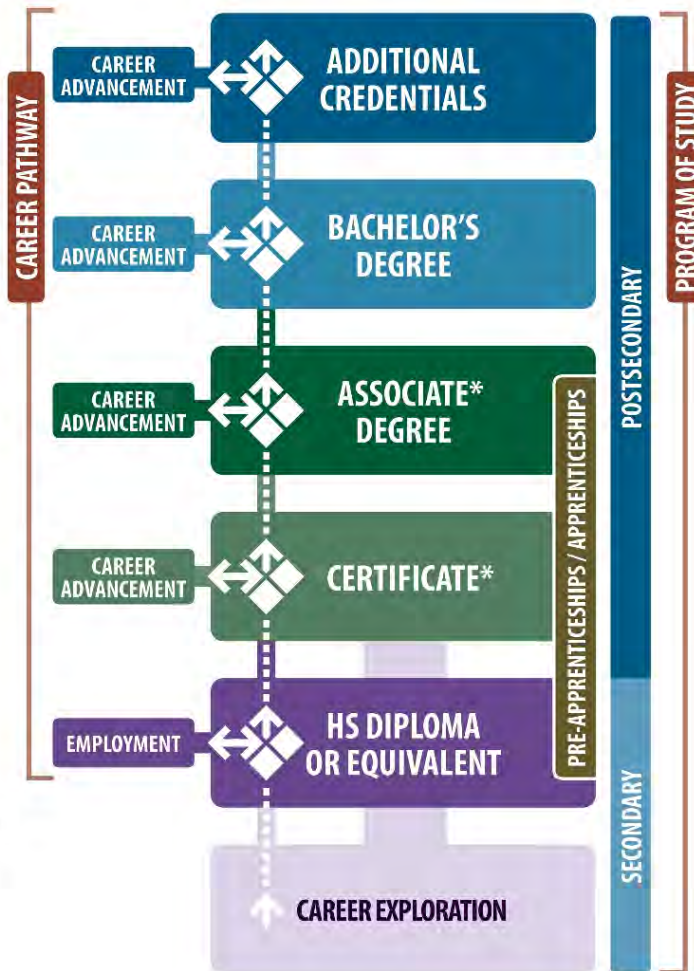
- Industry alignment
- Secondary and postsecondary credential attainment
- Enables entry and advancement in specific occupations or occupational clusters
- Education in the same context as workforce preparation
- Acceleration of educational and career advancement
- Preparation for success in secondary/postsecondary education options and apprenticeships
- Counseling services

A **PROGRAM OF STUDY (POS)**

is a coordinated, nonduplicative sequence of academic and technical content at the secondary and postsecondary level.

Attributes:

- Industry alignment
- Postsecondary credential
- Multiple entry/exit points
- Academic, technical, employability skills
- Challenging standards
- Progressive content specificity
- Career guidance



## STACKABLE CREDENTIALS

At these milestones the learner may advance to the next-higher-skill job in the sector for which they have trained, and/or continue in or reenter the learning pathway to pursue additional credentials.

\*These stackable credentials may:

- Include preparation for **industry certifications**.
- **Articulate** to bachelor's degree programs.
- Be obtainable by HS students through **dual credit**.

## CAREER EXPLORATION

Begins no later than 8th grade and is an integral part of instruction for:

- Career and Technical Education (CTE)
- Integrated Education and Training (IET)
- Adult Basic Education (ABE)
- Adult Secondary Education (ASE)
- English as a Second Language (ESL)



*Note about Featured Colleges:* This publication shares recommendations, lessons learned, and promising practices from community and technical colleges engaged either as a study college or technical assistance recipient in two projects: *Mapping Upward*, an initiative of the U.S. Department of Education's Office of Career, Technical, and Adult Education, and *Advancing Credentials through Career Pathways*, sponsored by the ECMC Foundation. Both projects supported colleges in their efforts to embed stackable credentials within technical associate degree programs.

## Partnerships to Support Stackable Credentials

While the benefits of stackable credentials may be obvious to educators, the community collaboration involved in designing and implementing a program embedded with stackable credentials requires investment of time, focus, and financial resources from many stakeholders. To lead such an effort, your college will need partners that include employers, members of industry associations, faculty members, and administrators, and may include representatives of other education providers and workforce and economic development agencies.

In some local labor markets, an intermediary may be appropriate to coalesce partners for the purpose of coordinating strategies that effectively meet the needs of both employers and job seekers.

For the team to engage and be successful, it is important to establish early on what you are attempting to do and why. What problem are you attempting to solve? What opportunities are you hoping to provide? What is the motivation for partners to collaborate? The answers will guide the development process, help you recruit partners, and, ultimately, drive the work. From improving program completion and job placement rates to meeting industry demands, your goals should be mutually beneficial for all partners and always cognizant of the needs of students.

As a first step, consider how you can build your case for creating stackable credentials.

Stackable credentials may be particularly useful if:

- There is a local shortage of entry-and mid-level talent.
- There is a lack of unanimity among employers about the competencies required for specific positions.
- Employers are uncertain of the competencies students have upon completion of your program.
- Your program:
  - Struggles with low enrollment,
  - Has low completion rates because students exit early for work, or
  - Struggles to place graduates because of a mismatch with employer needs.
- The college has embraced career pathways but your program's entry, and exit points are not clear or are too few.

Recognize that each partner brings different perspectives and resources to the table. Encourage the group to take a broad view of the community's needs, noting that educational attainment, economic growth, and quality of life go hand in hand. By sharing the workforce and economic benefits of a program embedded with stackable credentials, you can build urgency for enhancing programs that align to local workforce needs.

## USING THIS PUBLICATION

This publication is organized around topics of importance to community colleges considering a stackable credentials approach to program design. Each section provides information, examples, and suggested resources.

Consider:

- Reading the document in sections and hosting roundtable discussions with colleagues as you progress through the content.
- Using the reflection questions to jumpstart your conversations.
- Dividing research tasks among team members using suggested resources and tools.
- Starting with one program of study and creating a stackable credentials action plan.
- Identifying strategies for tracking success, making course corrections as needed, and measuring impact.



### What Is a Credential?

*Association for Career and Technical Education*—This brief provides an overview of common credentials including certificates, certifications, licenses, and degrees. For each type of credential, the brief identifies the type of entities the credential is awarded by, what the credential results from, the length of time required to complete it, and how the credential is maintained.

### Perkins Collaborative Resource Network (PCRN)

*U.S. Department of Education Office of Career, Technical, and Adult Education (OCTAE)*—PCRN provides information about Career Pathways and strategies for assisting career and technical education students in acquiring the academic, employability, and technical skills that employers demand.

### Career Pathways in Career and Technical Education

*CLASP*—This policy brief discusses the terms “career pathways” and “program of study,” explains the relationship between the two, and recommends steps for state alignment of career pathways and programs of study.

### Expanding Opportunities: Defining Quality Non-Degree Credentials for States

*National Skills Coalition*—This paper explains the importance of building quality-assurance systems for non-degree credentials (NDC), proposing a definition of what constitutes high-quality NDCs and criteria for developing quality assurance systems. The criteria are aimed at helping states reduce equity gaps among historically underserved populations.

### Impacts of Key Strategies on Non-degree Credential Completion by Adult Learners

*Lumina Foundation*—This resource consists of six reports on the attainment and value of non-degree credentials. Using data derived from Trade Adjustment Assistance Community College and Career Training (TAACCCT) grant projects, researchers explored the potential for different community college strategies to improve attainment of non-degree credentials, and to examine labor market outcomes for adults earning these credentials.

### Non-Degree Credential Quality: A Conceptual Framework to Guide Measurement

*Rutgers University*—Because of the broad range in quality and type of non-degree credentials, workers, employers, policymakers, and educational institutions cannot easily define or measure their value. Confusion is especially acute among historically underserved populations that may not have access to relevant information. To help alleviate this confusion, the authors of this report explored the issue of understanding and assessing the quality of non-degree credentials.

### Stackable Credentials: Awards for the Future?

*Community College Research Center*—This paper asserts that the stacking of credentials—combining short-term awards either with other short-term awards or with degrees—has the potential to help align skill supply with skill demand, especially for low-income and first-generation college students. The authors identify three types of stacks: progression, supplemental, and independent, noting the types are likely to have different labor market impacts and meet different student needs.



# Employer Engagement

## Setting the Right Tone for Employer Partnerships

Employer engagement in the design of programs embedded with stackable credentials is critical. Employer guidance regarding workplace expectations will serve as the cornerstone of program design; therefore, employers should be continually engaged in a program's development and evaluation. Employers are also essential to providing work-based learning experiences that align with classroom-based instruction. The two components should continually reinforce each other. A wide range of approaches exist for effectively engaging employers. Although each community is unique, the following cross-cutting strategies can provide a foundation for success.

### **AFFIRM** the need for stackable credentials and clarify desired outcomes.

You might think stackable credentials are a good strategy for your department, but what is the value for *employers* and *students*? What data do you have to support this assertion? How well do you understand what employers need? Will employers be willing to use these credentials in making hiring and promotion decisions, or will they continue to rely on traditional degree requirements? What evidence can employers provide to demonstrate that the proposed credentials will have labor market value? This is, perhaps, the most important question an institution should answer before creating stackable credentials and recruiting students for programs that offer them. Before initiating program design, you should decide how you will engage employers and what the engagement process will yield. From the outset, employers should be central to decisions about designing stackable credentials and advertising them to prospective students.

### **CREATE** a culture of employer leadership.

The design of stackable credentials should be driven by industry demand and led by employers. Pipelines to jobs are essential outcomes. Establish the understanding, among employers and education partners alike, that *employers'* needs will drive this effort.

### **BUILD expectations for the future.**

You should engage employers at all stages of design, development, implementation, assessment, and modification, and set the expectation from the outset that this is a partnership, not a cursory program review. Employers' investment of time and effort will ultimately benefit them as they build a qualified workforce.

## **Where to Begin: Initiating the Journey with the Right Stakeholders**

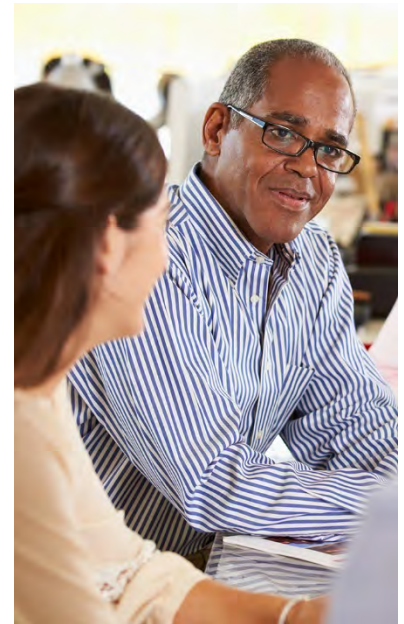
To ensure programs are demand-driven, you should engage local and regional employers. But which ones, and how? For answers to these questions, you should:

- Begin by looking at the career pathways program(s) already in place at your institution or led by other organizations or institutions in your community.
- Gather labor market information to identify sectors and occupations with sizable employment opportunities.
- Determine where gaps lie between your programs and credentialing opportunities and current or projected workforce demand.
- Convene industry leaders from across an identified sector to inform program development or redesign.

A sector-focused convening can help establish a good foundation for future relationships with local companies by demonstrating that your college is a willing partner, ready to listen to their hiring needs—both immediate and future—and eager to collaborate on new programs to meet those needs.

Here are example steps in a sector-based industry engagement process:

- 1** Identify local and regional employers within the sector.
- 2** Engage business leaders (Chief Executive Officers (CEOs), plant managers, senior executives, human resource (HR) directors) from the sector in a dialogue session to prioritize workforce needs.
- 3** Once priorities are identified, develop a sector-focused action plan in collaboration with dialogue session participants. Invite them (or their designees) to play a role in a new partnership that supports workforce development in the sector.



## The Convening: Asking the Right Questions of the Right People

Step 2 in the preceding list may require focused time and effort to ensure the right people get to the table—the most senior leaders of businesses in the sector, individuals who are aware of not only their company’s employment needs but of trends within the industry—and that the right questions are asked. You should engage leaders who have the authority to commit company resources to a partnership and respect participating employers’ time investment, keeping the length of the convening to no more than a few hours. You should let attendees know you have assembled representatives from the sector to listen to their concerns about workforce needs and form a partnership that will benefit employers across the sector. The operative word is *listen*. Once employers know you are serious about wanting to meet their workforce development needs, they will share the detailed information you need to respond effectively. You could ask questions about topics such as these:

- Current industry challenges and operational obstacles
- Occupation-specific labor pool needs
- Gaps in technical and employability skills
- Projected changes to the industry that will impact the program
- Partnership opportunities, including work-based learning experiences
- College certificates and industry certifications most valued and prioritized for screening and/or hiring job applicants

**EXAMPLE QUESTIONS** to pose at a convening of manufacturing employers could include:

What are the top three challenges facing the region’s manufacturing industry over the next three years? What are the implications for the industry’s workforce?

What are the top five occupational areas in which the manufacturing industry is facing the most severe employee shortages? If answers vary by skill area (e.g., computer numerical control operators, machinists), ask participants to specify accordingly.

At the entry level, what are the three greatest technical skill and/or employability skill weaknesses among your current employees?

Do you anticipate the region having a large enough pool of skilled candidates from which to draw employees within the next 18 months? In the next three years?

Your dialogue with employers should also include questions about the credentials they value. It is likely the discussion will reveal diverse levels of understanding about the competencies represented by certificates and degrees awarded by the college as well as by industry certification exams the college program may prepare students to take. You should explore these issues to the depth necessary to understand the skills needed for entry-level as well as progressive levels of employment within a pathway and how stackable credentials offered by your program could better meet local workforce needs.

If you have difficulty convening the right employers, consider identifying a “champion” among local employers who can invite others from the sector or asking your local chamber of commerce or economic development council to co-host the meeting with you. You could also leverage other employer organizations or industry groups such as a regional manufacturers’ association.

In today’s business environment of virtual collaboration, you might wonder if an in-person convening is necessary. While you could interview employers one-on-one, either in person or over the phone, or you could ask them to complete an online survey, a face-to-face convening may be worth the extra effort, as it elicits a higher level of engagement and employers value the networking opportunity.

Organize the convening as a listening session during which employers share their workforce needs in response to well-researched discussion questions. Engage an external facilitator or one of your employer partners to lead the conversation. It is the responsibility of the college to use the language of and respond to the priorities of industry, not the other way around. Educators should actively listen to the discussion to identify opportunities for partnerships, better understand local workforce needs, and determine key areas for program modification or development. If you intend to create and sustain results-driven partnerships, you should allow employers to co-lead program planning and decision-making efforts.

You should ensure that any convening you have results in a set of recommendations that can be summarized and shared with participants promptly for further clarification and confirmation. For example, draft an action plan addressing the education and training needs of the sector based on employer input that clearly defines roles and responsibilities, as well as timelines for implementation, resource needs or expectations, and mechanisms that will be used to assess the progress and success of the action plan. You should move through this process quickly so you can demonstrate your college’s responsiveness to industry needs and do not lose momentum. When working with employers, decisions and timelines





that span days and weeks—not months and semesters—may be critical. The college should embrace this business mindset to ensure that continued employer engagements occur with the frequency and depth of conversation necessary to inform continuous program enhancements.

The Business and Industry Leadership Team (BILT) model provides a clear example of effective employer engagement. The BILT model was created by the **National Convergence Technology Center (CTC)** based at **Collin College**. The CTC is a center of excellence funded by the National Science Foundation's Advanced Technological Education (ATE) program. ([Learn more about the ATE program.](#)) The BILT model is being implemented at a growing number of colleges across the nation. For example, **Forsyth Technical Community College (Winston-Salem, NC)** adopted the BILT model for its advanced manufacturing programs. The BILT is led by a chair and committee members from industry who co-lead program initiatives that support program improvement, recruitment, and community engagement efforts. Forsyth's *Learn and Earn Apprenticeship Program* (LEAP) was born with the core BILT member companies as official LEAP partners. LEAP apprentices from diverse backgrounds and experience levels are awarded full-time employment as they enter advanced manufacturing programs at Forsyth Tech.

Sometimes the best candidates for employer leadership will be found among the college's own graduates. The advisory board for the Information Technology (IT) program at **Moraine Valley Community College (Palos Hills, IL)**, for example, includes program graduates who have advanced to executive and managerial positions with regional companies. This is by design: the example of successful program graduates instills in students the expectation that they too can succeed at a high level. Program alumnae have a good understanding of the knowledge and skills of students coming out of Moraine's IT program and understand how the program is structured, making them well equipped to suggest changes.

## REFLECT AND CONSIDER

Below is an example checklist of employer engagement considerations:

- ☒ Have inventories of the local/regional labor market needs been conducted? How recently? Have employers validated your findings?  
*Tip:* Both public and private data sources can provide valuable information. Private sources offer real-time labor market information and subscription labor market analytic services. Reach out to your local workforce board to identify opportunities to partner on effective and cost-efficient data-gathering efforts. Check out the Tools in this section for further resources.
- ☒ Have local employers identified the academic, technical, and workforce credentials they value and prioritize when hiring and deciding whether to retain employees?
- ☒ Are program advisory committees led by employers? Is the work of the committees coordinated in a manner that ensures efficient use of employers' time?
- ☒ Do the advisory committees include a strong degree of permanence as evidenced by signed agreements, a shared vision, formal decision-making, and periodic goal-setting?
- ☒ Is the return on investment for employer partners documented in a manner that is useful to them?
- ☒ Do employer partners offer work-based learning experiences for both students and faculty?



## TOOLS *(Titles are clickable.)*

### **Advancing Credentials Employer Engagement Toolkit**

*CORD*—This online toolkit is designed for community colleges to enhance their employer engagement efforts within a department or college wide. Five modules provide tools and resources to analyze current employer relationships, identify new ones, and manage the multiple (often overlapping) employer-engagement activities that are conducted across a college, and to help educators and employers better understand one another's perspectives.

### **Business Industry Leadership Team (BILT) Toolkit**

*National Convergence Technology Center*—The BILT toolkit was designed to serve as a guide for strengthening industry commitment to technical programs. The BILT model, originated by the National Science Foundation Convergence Technology Center at Collin College, puts businesses in a co-leadership role for college technical programs so they have direct input into the knowledge, skills, and abilities (KSAs) that program graduates should possess 12–36 months into the future, ultimately producing candidates that businesses are more likely to hire. Topics include benefits and elements of BILTs, member identification, and meeting logistics.

### **The Career Pathways Toolkit: An Enhanced Guide and Workbook for System Development. Element 2: Identify Industry Sectors and Engage Employers**

*US Department of Labor (DOL)*—This resource from the U.S. Department of Labor is designed to guide state and local leaders in building, implementing, and sustaining career pathways systems and programs. The toolkit is divided into six elements; Element 2 focuses on identifying in-demand industries and engaging employers. The toolkit includes worksheets to assist in planning and implementation.

### **Effective Employer Engagement Strategies**

This Skills Commons resource presents a range of employer engagement strategies used across different industry sectors during TAACCCT projects. The collection offers examples of how to deepen employer engagement at all levels of program design and implementation.

### **Employer Engagement by Community Colleges in New York**

*Federal Reserve Bank of New York*—Based on surveys of the 37 community colleges in the state of New York, this report highlights issues involved in obtaining and enhancing employer support for college-based workforce training programs and in overcoming hurdles to engagement. The report includes numerous examples of employer engagement in action.

### **Employer Engagement Toolkit: From Placement to Partners**

*Jobs for the Future*—This toolkit is a guide for training providers, workforce development organizations, community colleges, and other community-based organizations

integrating employer engagement into core decision making. Four tools are provided: (1) Getting Ready. Where Are You Now?; (2) Targeting Your Relationships; (3) Becoming a Go-To Convener; and (4) Partnering on Program Design and Delivery.

### **Four Ways to Increase the Value of Short-Term Credentials: A Guide for Community Colleges**

*Jobs for the Future*—Although an increasing number of people are seeking specialized job skills and knowledge via alternative educational credentials, employers often do not recognize the value of those credentials. This report explores the causes of this misalignment and suggests ways community colleges can better align their credentials with labor market need. The report explains differences among short-term credentials, describes characteristics of high-quality credentials, and provides examples of efforts to enhance the value and transparency of credentials.

### **Labor Market and Workforce Development System Data Toolkit**

*Corporation for a Skilled Workforce*—This toolkit is designed for anyone interested in better understanding what data and related resources are available to help answer questions about local and regional labor markets, existing and emerging talent pipelines, and the workforce development system in their cities and regions.

### **Next Generation Sector Partnership Training Manual and Toolkit**

*Institute of Networked Communities*—This resource is the product of fifteen years of lessons learned from sector partnerships across the U.S. by the Institute of Networked Communities. It includes step-by-step guidance for regional teams to work together to build successful industry-led sector partnerships.

### **Reimagining Employer Engagement: A Toolkit for Providers**

*Aspen Institute*—This toolkit is designed to help workforce development practitioners establish and enhance relationships with employers in retail. The toolkit's tips and suggestions are also applicable to other sectors. Topics include finding employers, obtaining labor market information, marketing your services, overcoming employer objections, involving employers in your organization, and soliciting and using employer feedback.

### **Work-Based Learning Tool Kit**

*U.S. Department of Education, Office of Career, Technical, and Adult Education (OCTAE)*—This tool kit provides state and local program administrators with information regarding the key components of work-based learning (WBL), including employer engagement.

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# Designing a Program with Stackable Credentials

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## Engage Employers in Program Design

Having established a common interest in, and demand for, stackable credentials, partners can move forward with the task of program design. Because the stackable credentials approach is meant to prepare students for employment, consider engaging employers upfront so that their hiring needs can determine the skills and credentials on which your program will focus. Colleges that have successfully developed programs with stackable credentials have invited employers to describe their expectations of exit points—what students should know and be able to do upon completion of each credential (college certificates, diplomas, and degrees)—and identify what industry certifications, if any, are aligned to each credential and valued by their companies.

To help clarify content your program should cover and credentials that should be stacked within it, consider asking employers the following:

- ✓ *What knowledge, skills, and abilities are in demand? What do employees need to know? What skills or competencies should new hires have when they arrive on the job?*
- ✓ *What skill levels are in demand? Are employers looking primarily for entry-level certificate-holding applicants, or for ways to upgrade the skills of their incumbent workforce?*
- ✓ *How many openings for program graduates do employers anticipate and at what pay scale?*
- ✓ *How will employers assess a student's readiness or potential employability besides a credential? What opportunities for unique student populations is the employer willing to provide?*
- ✓ *What credentials have value across the sector, not just with a particular company?*

Questions such as these drove the transformation of all workforce development programs at **Harper College (Palatine, IL)** to the stackable credentials model. This was a major initiative embedded within the college's goal of increasing the number of students completing credentials and moving into employment. The stackable credentials framework prompted academic departments to rethink program offerings and how each credential within an associate degree program contributes to mastery of skills in a given field. Faculty and employers jointly considered the progression of courses, the types of credentials that would signal the



acquisition of skills, and whether industry-recognized certifications should be embedded in the training. The graphic below depicts the stackable nature of the industry credentials embedded in Harper College's manufacturing technology program. Built on the Manufacturing Skills Standards Council's (MSSC) Certified Production Technician (CPT) credential, the program branches into four specialties, each consisting of a series of credentials that stack toward the associate degree.

## Manufacturing Technology

### CAREER PATHS – LEARN MORE, EARN MORE

Harper College  
Manufacturing  
Technology  
Pathway



\*Four of these courses prepare students to sit for industry recognized MSSC certification exams. <http://www.msscusa.org/>

\*\*Prepares students for NIMS Certifications. <https://www.nims-skills.org/web/nims/home>

\*\*\*Prepares students for American Welding Society SENSE certifications. <http://www.aws.org/education/sense/>

## Design Considerations

Your goal is to offer programs that address the skills deficits in the local workforce identified by your employer partners and to do so in a way that enables students to earn multiple credentials on the way to a degree. This series of milestones should enable learners to enter the labor market with credentials of value and to build on them to access advancing levels of

employment and earnings. But how do you begin the process of creating credentials that represent the competencies local employers demand?

The most important questions you may wish to consider before developing new credentials include: which employers already use these or similar credentials for hiring or promotion decisions, and which employers are interested in shifting their hiring and promotion practices to rely on or include these credentials?

Colleges that have successfully developed programs with stackable credentials have looked first at existing programs and determined what could be modified, adapted, or reorganized to address identified gaps by considering questions such as:

Should the college modularize an existing degree program into multiple certificates, or revise the exit points at which certificates or certifications/micro-credentials are awarded?

Which groupings of competencies have labor market value, and are there hierarchies of competencies that must be considered when developing pathways? To what extent does the existing program teach these skills? Where are the gaps?

Should the college create new content, or are there existing resources available that could reduce the time and cost of content development?

Do current faculty have the necessary practical experience to prepare students for the current labor market demands? If not, what will the college do to upskill faculty or to hire more qualified instructors?

If applicable, will the program meet licensure requirements? How will the college communicate with employers and students about licensure requirements and whether the proposed or current programs meet those requirements?

What industry certifications do employers value by prioritizing them in the screening and/or hiring process?

Can preparation for these certifications be embedded in the program to coincide with the stackable certificates awarded?

What about credit for prior learning options?

- Are policies in place to support internal articulation of courses completed through non-credit programs?
- What about credit for military or work experience?
- Are faculty equipped to develop prior learning assessments?
- Does the college crosswalk industry certifications to credit-bearing courses?

If entirely new content is to be developed, consider the process described in the following sections which is based on approaches taken by colleges that have successfully developed programs with stackable credentials.

## Creating a Program with Stackable Credentials



A program with stackable credentials consists of a series of education milestones that students can attain as they move through the program. The model is flexible enough to meet the needs of a wide range of students, presenting attainable intermediate goals and providing exit points in the form of credentials with labor market value. There is no standard template for creating a program with stackable credentials. Because of its flexibility, the model can be customized for different settings. In some cases, it may take the form of a ladder—in which students progress in a linear fashion—but it also may resemble a lattice or web, allowing for lateral movement as students earn credentials in multiple specialty areas.

This flexibility also supports work-based learning experiences, such as internships and apprenticeships, allowing for tailoring of the program to meet the specific needs of employers.

## Steps in the Program Development Process

The example of a program development process outlined below assumes a program is being developed from scratch, but most steps could also be used in the revision of an existing program. Colleges that have successfully developed programs with stackable credentials rely on a design committee comprised of faculty and employers who understand the jobs for which the pathway is created. The sequence of steps they undertake often includes the following:

1. For each job title or cluster of job titles supported by the pathway, they develop the list of job tasks that map to each potential course and sequence of courses to be written.
2. They identify appropriate and relevant industry skill standards pertaining to the job tasks so those standards can be embedded in the coursework.
3. They consider institutional guidelines for lecture and laboratory contact hours. They group required goals, objectives, and instructional content into a logical sequence of courses.

4. They create a chart or matrix identifying where in each course specific job tasks and industry skills standards would be taught.
5. They develop and incorporate assessment measures and strategies, including a provision for industry certification examinations that documents student learning and skill attainment.
6. They develop policies and procedures for non-credit/credit articulation to ensure credit for skill attainment can be awarded regardless of the college division in which a course originates.
7. They plan course delivery options that offer flexibility for working students.
8. They group courses into logical sequences of college certificates. Each certificate stacks toward the associate degree, leads to employment opportunities, and aligns to industry certifications as appropriate.
9. They consider instructor training, certification requirements, and laboratory and facility needs.
10. They develop a cycle for course and program review frequent enough to accommodate technology advancements in the industry.





## Career Maps as a Planning Tool

Once your program is created or redesigned, consider creating a “map” of the career pathway it supports. The map is a visual depiction of the pathway’s overall structure showing the stackable credentials embedded in the pathway and the degree(s) to which they lead. The map provides an effective way to communicate academic milestones and inform students of opportunities to earn industry certifications and obtain jobs associated with each credential earned. The map can support advising by opening students’ eyes to education and career goals they might not otherwise have considered.



**TOOL TIP:** *On the next two pages is a map depicting Gateway Technical College’s (Kenosha, WI) automotive technology career pathway. Following the map is a template for creating your own career pathway map. The PDF containing the template is a customizable form designed to accommodate a*

*broad range of programs. The template can help your program development committee keep its eye on desired outcomes and once completed, serve as an advising and marketing tool.*

**DOWNLOAD** Gateway Technical College’s example map.  
**DOWNLOAD** the customizable map template to create your own.



For best results in using the template, download the file to your device and open it using a recent version of Adobe Acrobat Reader.

# CAREER PATHWAY

GATEWAY TECHNICAL COLLEGE

## Automotive Technology

### Previous Credit

There are many opportunities, both in high school and through previous college, work, and/or military experience, to earn credit at Gateway.

For more information about earning credit in high school and opportunities for credit for prior learning, please see reverse side.

### Certificate

#### Automotive Under Car Technician (11 Credits)

Potential Jobs:  
- Lube Technician  
- Alignment Technician

Median Income\*:  
\$10.50 per hour  
\$21,840 annually  
\*Based on locally reported wage data.

Students who complete this program are prepared to earn industry-recognized certifications, including:  
-NC3 Snap-on Wheel Alignment and Balancing  
-NC3 Pro-Cut  
-NC3 Starrett Precision Measuring

### Technical Diploma

#### Automotive Maintenance Technician (31 Credits)

Potential Jobs:  
- Service Technician  
- Quick Service Technician

Median Income\*:  
\$14.00 per hour  
\$29,120 annually  
\*Based on locally reported wage data.

Students who complete this program are prepared to earn industry-recognized certifications, including:  
-NC3 Snap-on Multimeter  
-NC3 FCA Level 0 Certified  
-NC3 Snap-on Torque  
-NC3 Snap-on Battery Starting and Charging

### Associate Degree

#### Automotive Technology (64 Credits)

Potential Jobs:  
- Diagnostic Specialist  
- Master Technician

Median Income\*:  
\$26.00 per hour  
\$54,080 annually  
\*Based on locally reported wage data. Hourly wage may vary greatly based on flat rate compensation and experience level.

Students who complete this program are prepared to earn industry-recognized certifications, including:  
-NC3 Snap-on Diagnostics  
-NC3 FCA Level 1 Certified

### Career

Students are prepared to enter their career field at any point along the pathway and advance as they complete higher-level credentials.

### Bachelor's Degree

Transfer up to 64 credits via existing articulation agreements with colleges such as:

- Bellevue University
- Franklin University
- Lakeland University
- Ottawa University
- UW-Oshkosh
- UW-Stout

Salary and employment data courtesy of EVSI.

[gtc.edu/automotive](http://gtc.edu/automotive)



# CAREER PATHWAY

GATEWAY TECHNICAL COLLEGE

## Automotive Technology

### Have questions or need assistance with getting started?

Gateway's New Student Specialists are ready to help. Call 1-800-247-7122 or stop into any Student Services Center to make an appointment or register for an upcoming new student event.

**Elkhorn Campus**  
400 County Road H  
Elkhorn, WI 53121

**Kenosha Campus**  
3520 30th Ave.  
Kenosha, WI 53144

**Racine Campus**  
1001 S. Main St.  
Racine, WI 53403

### Credit for Prior Learning

**Experience Pays!** You've been there . . . You've done that . . . Let us give you credit for it!

Gateway Technical College recognizes you have knowledge and skills gained through previous educational, life and work experiences. We want to help you receive credit for those experiences — saving you time, money and helping you enter your new career more quickly.

There are various ways to earn credit including Degree Course Substitution, Prior Learning Assessment and Transfer Credit. Credit for Prior Learning opportunities for this program include:

602-104 Brake Systems  
602-107 Auto Service Fundamentals  
602-124 Steering & Suspension Systems  
602-125 Electrical & Electronic Systems <sup>1</sup>

For more information visit [gtc.edu/cfpl](http://gtc.edu/cfpl) or contact the Registrar's Office at [cfpl@gtc.edu](mailto:cfpl@gtc.edu) or 262-619-6366.

[gtc.edu/automotive](http://gtc.edu/automotive)

**Get started at  
Gateway today!**  
Visit [gtc.edu](http://gtc.edu)  
to request information  
or to apply.

### Earn College Credit in High School

**Get an edge by earning college credit before you graduate and save money at the same time.**

There are many ways to earn college credit while you're still in high school, including transcribed and advanced standing credit, Start College Now and youth apprenticeship. Suggested courses to take in high school for this program include:

602-104 Brake Systems  
602-107 Auto Service Fundamentals  
602-124 Steering & Suspension Systems  
602-130 Auto Shop Essentials

For more information on earning college credit in high school connect with your high school counselor or the Gateway New Student Specialist at your high school. Visit [gtc.edu/highschool](http://gtc.edu/highschool).



The ACT program is 100% funded with a "RACOCCT Round V \$19.9 million grant awarded by the U.S. Department of Labor's Employment and Training Administration. This program is an equal opportunity program and auxiliary aids and services are available upon request to individuals with disabilities. The workforce product was funded by a grant awarded by the U.S. Department of Labor's Employment and Training Administration.

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# Career Pathway

Pathway (Example: Nursing)

College name

College website

## Previous Credit

Use this space to provide information about the opportunities your institution provides for students to earn college credits while in high school, or to earn credit for prior learning such as previous college, work, and/or military experiences.

## Certificate

Use this space to identify certificates available within this program that stack toward a degree. Be concise, but list as much detail as possible about the certificate earned, program duration, potential employment opportunities, and industry certifications students are prepared to earn, as applicable.

For each, list:

- Name of certificate
- # of college credits
- Potential job and median income
- Industry certification

## Additional Certificate and/or Diploma

Use this space to identify additional certificates and/or a diploma that stacks toward a degree. Be concise, but list as much detail as possible about the certificate earned, program duration, potential employment opportunities, and industry certifications students are prepared to earn, as applicable.

For each, list:

- Name of certificate/diploma
- # of college credits
- Potential job and median income
- Industry certification

## Associate Degree

Use this space to describe the remaining credits in the pathway sequence needed to earn an AS or AAS degree. Include program details, potential employment opportunities, and additional industry certifications, as applicable.

For the degree, list:

- # of college credits
- Potential job and median income
- Industry certification

## Career

Any additional details about career opportunities aligned to stackable credentials along the pathway

## Bachelor's Degree

Information about any articulated baccalaureate degree options available to program graduates. List universities with current agreements and # of credits that can be transferred.

This map has been adapted with permission from Gateway Technical College under a Creative Commons Attribution 4.0 International License.

# Career Pathway

Pathway (Example: Nursing)

## Have Questions or Need Assistance?

Provide contact information and office locations for advisors or counselors who can assist potential students.

## Credit for Prior Learning

How can students obtain credit for prior learning, and who should they contact for more information? As applicable, identify potential cost savings and reduction in time to degree.

## Earn College Credit in High School

How can students obtain college credit while still in high school, and who should they contact for more information?

College name

College website

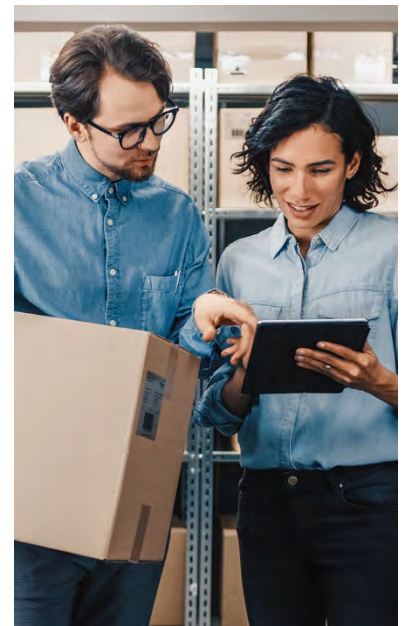
This map has been adapted with permission from Gateway Technical College under a Creative Commons Attribution 4.0 International License.

## Questions to Consider as You Create Your Map

- What is the general scope of the pathway, i.e., at what skill levels does it begin and end? What workforce development issues are you addressing and/or opportunities are you providing through the creation of stackable credentials within the pathway?
- Who are your target audiences and how will you use the map to effectively communicate to them pathway entry and exit points?
- What occupations align to each exit point within the pathway?

## Stackable Credential Elements to Consider

- Description of the overall career pathway and the occupations within it.
- Each academic credential within the pathway (certificate, technical diploma, associate degree, etc.).
- Corresponding industry certifications aligned to academic credentials.
- Academic program duration.
- Employment opportunities associated with academic credentials and industry certifications (Include job titles, salary ranges, and synopses of required skills.).
- If creating a web-based map or a document that will be viewed onscreen, provide direct links to program-related resources.



## Five Common Themes in Stackable Program Design

While programs embedded with stackable credentials may vary considerably by locale or industry, they are by design industry informed and typically share five common themes. College programs highlighted in the following section:

- 1. Prepare students for employment**
- 2. Embed industry-recognized certifications**
- 3. Incorporate work-based learning experiences**
- 4. Support baccalaureate transfer**
- 5. Partner with area school districts**

Below, these five themes are described and illustrated with examples from the field.

### **THEME 1 Prepare students for employment**

One of the key features of the stackable credentials model is that it creates milestones along the pathway to the associate degree. These milestones can be reached in less than two years (the typical duration of an associate degree) and are often industry-recognized, making the student more attractive to employers despite the lack of a degree. The automotive technology associate degree program at **Gateway Technical College (Kenosha, WI)** provides a good example of this. The program awards a one-year, 31-credit-hour automotive maintenance diploma at the half-way point. This credential establishes that its holder is qualified to work as an entry-level automotive technician. Embedded within the diploma are four industry-recognized certifications from the National Institute for Automobile Service Excellence (ASE). Completers are also prepared to earn 15 industry certifications from NC3 partners such as Snap-on and Starrett, as well as the FCA Mopar Cap Local Level 0 certification. Holders of the automotive maintenance technician diploma are usually able to obtain positions in the field at a median wage of \$14 per hour. Many of the students who earn the diploma go on to complete the associate degree, earn additional industry certifications, and secure jobs as auto line technicians at approximately \$26 per hour. ([Learn more.](#))

### **THEME 2 Embed industry-recognized certifications**

Without exception, the colleges featured in this publication have embedded industry-recognized credentials into credit-bearing programs (the number and type of credentials included in each program varies by occupational field as do the degree to which the credentials are valued by employers). For example, leaders of the **California Horticulture Network**, which consists of **Bakersfield College (Bakersfield)**, **Shasta College (Redding)**, **MiraCosta College (Oceanside)**, and **Reedley College (Reedley)**, partnered with peer colleges and programs, industry associations, and the statewide faculty association to develop a 16-unit horticulture program, built on a common core of nine units, that embeds industry-recognized credentials leading to certification (arborist or landscape maintenance). Approved as a statewide model program, it can now be offered at any of California's 114 community colleges. The network is also leveraging individual college expertise and California's Community College Course Exchange, which is an online initiative, to enable smaller colleges to offer a greater range of specializations as well as labs they could otherwise not support. Collaboration on a single stackable credentials program has opened the door to a much greater range of possibilities for expanding,



The California Horticulture Network's collaboration on a single stackable credentials program has opened the door for expanding, enhancing, and improving horticulture-related programs that lead to good jobs and careers— across the state.

enhancing, and improving horticulture-related programs that lead to good jobs and careers—across the state.

Another example can be found in the mechatronics program at **Westmoreland County Community College (WCCC) (Youngwood, PA)**, which is organized around the Siemens Mechatronic Systems Industry Certification Program. The Siemens level-1 and level-2 certifications have been integrated into the WCCC program for the mechatronics systems technician I and II academic certificates. Siemens level-1 certifies that the individual is “an intelligent machine operator.” Level-2 certifies that the individual can function as a “highly skilled technician who can work with modules and components in complex mechatronics systems [and can] assess and analyze systems as a whole.” WCCC is an authorized Siemens testing center, although students can take the test at any number of testing centers around the country. Students are not required to pass the Siemens certification tests to earn the academic certificates from WCCC. ([Learn more.](#))



### **THEME 3** Incorporate work-based learning experiences

There are many benefits of work-based learning experiences for students. However, maintaining employer relationships to ensure ample opportunities are available locally and ensuring that the work aligns to your program are ongoing issues to balance. The continuum of work-based learning experiences that employers are willing to provide can be quite broad, but earn-and-learn models can help students transition to work in their chosen careers earlier, which can increase program engagement, motivation, and persistence to complete credentials. Several of the colleges we interviewed award credit for work-based learning. Some have built formal internships into their instructional frameworks. Others have developed apprenticeship or journeyman programs that are integrated with the awarding of stackable credentials. For example, for several years, automotive repair businesses in the **Owensboro Community and Technical College (OCTC) (Owensboro, KY)** service area experienced a shortage of qualified mechanics. The college offers an Automotive Technology AAS degree with embedded diplomas and certificates. But, to respond to the labor shortage in a shorter amount of time, OCTC engaged employers in the development of a collaborative earn-and-learn model, the Auto Fast-Track program. The courses are provided in competency- and project-based hands-on formats that go far beyond the traditional classroom/lab instruction. The program gives students the skills they need for an entry-level position in the automotive repair field. Students earn wages three or four days a week and attend college courses two days per week. Course credits are awarded for current ASE and manufacturing-related certificates leading to faster completion of credentials. Multiple



stackable credentials can be earned each semester for a total of three semesters plus a summer session, which also has a full semester load. ([Learn more.](#))

#### **THEME 4 Support baccalaureate transfer**

Students who complete associate degrees that include stackable credentials are sometimes interested in pursuing baccalaureate degrees at other institutions. Although community colleges control how credits are transferred between their own programs, they have less control over whether and how many credits that they have awarded will be accepted for transfer by other institutions. Where transfer agreements have been put in place, the process can be seamless. In Florida, for example, for students who complete the engineering technology associate degree at **Hillsborough Community College**, the transfer of credits into the baccalaureate engineering program at four state colleges is automatic. Even in situations in which transfer of credits is not automatic, the existence of articulation agreements can help facilitate transfer. ([Learn more.](#))

#### **THEME 5 Partner with area school districts**

Most of the colleges we interviewed have developed partnerships with the career and technical education (CTE) departments of area school districts. At a minimum, the colleges invite high school students to visit their campuses and provide professional development opportunities for high school teachers. Many offer dual-credit CTE courses for high school students. Others offer early college programs that bring students to campus for a portion of the school day and engage them in college activities throughout a semester. Colleges with strong connections to high schools are better positioned to increase enrollment among recent high school graduates.

**Isothermal Community College (Spindale, NC)** uses an early college model, i-TECH Academy, to engage high school students in technical programs and foster early college completion. i-TECH Academy gives students a true college experience with an orientation, participation in campus events, and access to college resources. i-TECH students spend their mornings at their high school, taking high school courses, and spend their afternoons taking tuition free college courses at the college. Transportation is provided for students at the three county high schools. The i-TECH pathway incorporates stackable credentials and industry-valued third-party credentials. Students can earn a Mechanical Engineering Technology Certificate in their junior year and then take courses their senior year to complete a Mechanical Engineering Technology Diploma. After high school graduation students can complete an Associate Degree in Mechanical

Engineering Technology or Manufacturing Technology in one year at little or no cost. Students can choose to continue their studies by pursuing a bachelor's degree in Engineering Technology at a regional university, either full-time or part-time, while working in their technical career. ([Learn more.](#))

## Building Advocacy and Tackling Tough Issues

Securing buy-in from faculty and administrators at your college (and, as needed, other educational institutions) is essential in developing coursework and awarding credit for your stackable credentials' offerings. While the benefits of a stackable credentials approach may be clear, the work involved in modifying existing programs or creating new ones cannot be underestimated; nor can the importance of advocacy among colleagues at varying levels and across divisions within your college. The colleges we interviewed stressed early engagement of senior administrators who have the authority to green-light new academic processes and approve resource allocation. They also recommended teams from both credit and non-credit programs in the same sector be engaged to break down silos and take a holistic look at how the college serves a particular industry. Involving the registrar's office and admissions team can also be critical for information sharing to ensure new credential opportunities and credit policies are shared with potential students. Consider the size and "climate" of your institution (politics and other intangibles) in deciding whether to begin building advocacy through group gatherings—information sessions, staff meetings, faculty senate meetings—or through one-on-one meetings with individuals whose support can help bring others on board.

An example of building advocacy for stackable credentials can be found at **Lehigh-Carbon Community College (Schnecksville, PA)** in their efforts to institutionalize a career pathways model campus-wide. At the outset, the college reorganized all academic and technical programs to fall under seven larger career pathways. To support a career pathways systems approach, the college is providing professional development for faculty and staff on the elements of career pathways and stackable credentials; strengthening and expanding employer partnerships by transforming advisory boards into Business and Industry Leadership Teams; and addressing internal articulation challenges by empowering one dean under each career pathway to oversee both non-credit and credit programs, as shown by their example of a production technician, as well as to [crosswalk industry certifications](#) to academic credit. The college is implementing these innovations one pathway or program at a time, to learn what works and to facilitate replication.



The collaborative model described throughout this publication can be used to drive local efforts as well as state-wide or regional efforts. For example, **Community College of Beaver County (Monaca, PA)** has partnered with community colleges in Ohio, Pennsylvania, and West Virginia to form the Tri-State Energy and Advanced Manufacturing (TEAM) consortium. Working collectively across three states, TEAM consortium members have gathered valuable input on workforce needs in the region. This process has led to the standardization and sharing of programs. The consortium has also brought together government leaders and workforce board members to discuss development of a collaborative marketing effort to attract new energy and advanced manufacturing employers to the region and to address regulatory issues that could constrain industry engagement.



**Tip for Tough Discussions** If you find yourself at an impasse or tasked with facilitating a discussion involving divergent viewpoints, consider using the exercise linked below. A Fishbone exercise enables participants to identify problems and brainstorm resources, services, and strategies to resolve them.

DOWNLOAD the Fishbone exercise instructions.  
DOWNLOAD the handout to use with the Fishbone exercise.

## REFLECT AND CONSIDER

As you develop a program with stackable credentials, you may wish to consider the following questions:



- ☒ Based on identified gaps in the local workforce, can your existing program be modified to meet these needs, or should a new program be developed?
- ☒ Is the program aligned to employment opportunities with family-sustaining wages?
- ☒ Does the program address academic, technical, and employability skills, as well as industry standards?
- ☒ Does the program provide multiple entry and exit points?
- ☒ Have certificates been validated by employers and (as needed) revised to align with current local conditions?
- ☒ Has the program been aligned to industry-recognized certifications?
- ☒ Are work-based learning experiences offered to the fullest extent possible? If not, how can you collaborate with employer partners to expand opportunities, for example, by including paid experiences and distance-learning options?
- ☒ Has a career pathway map been developed depicting academic credentials aligned to career opportunities?
- ☒ Are articulation agreements in place to award credits earned through early college and dual-credit courses?
- ☒ Is an internal articulation policy or procedure in place between non-credit and credit coursework that allows students to avoid duplicative content, earn credit for competencies mastered, and accelerate accumulation of credentials? Are students (or potential students) aware of these opportunities?
- ☒ Are opportunities provided for credit for prior learning and prior learning assessment?

## Discipline-Specific Competency Frameworks for Apprenticeships

*Urban Institute*—The Urban Institute has created 26 frameworks for registered apprenticeships in eight fields: advanced manufacturing, energy, finance, health care, hospitality, information technology, transportation. The competency-based frameworks represent input from employers, educators, and other workforce and training experts and can be used to fast-track the development of registered apprenticeships. For each occupation, the site provides a Work Process Schedule and Full Competency-Based Framework.

## Building Credential Currency: Resources to Drive Attainment across K-12, Higher Education, and Workforce Development

*Education Strategy Group*—This toolkit helps states identify non-degree (industry-recognized) credentials that are most valuable to students and employers, for the purpose of prioritizing those credentials in educational programs. The toolkit is designed to help state and local policymakers accomplish four objectives: identifying in-demand occupations and associated non-degree credentials; validating those findings with employers and creating prioritized statewide lists of the most valuable non-degree credentials; encouraging non-degree credential attainment through funding strategies, secondary-to-postsecondary articulation, and rigorous accountability; and reporting and monitoring credential attainment.

## Resources for Working with Industry to Implement Competency Models

*U.S. Department of Labor*—This site features resources of interest for those seeking to learn more about how competency models can benefit their workforce development efforts. (A competency model describes what knowledge, skills, and abilities are required for success in a given job, occupation, or industry.) Links include the Competency Model Clearinghouse and a series of short videos on cross walking competency models.

## The Career Pathways Toolkit: An Enhanced Guide and Workbook for System Development.

### Element 3: Design Education and Training Systems

*U.S. Department of Labor* —This resource is designed to guide state and local leaders in building, implementing, and sustaining career pathways systems and programs. The toolkit, which includes writeable worksheets, is

divided into six elements. Element 3 is intended to help practitioners (1) identify and engage education and training partners; (2) identify target populations, entry points, and recruitment strategies; (3) review, develop, or modify competency models with employers and develop and validate career ladders/lattices; (4) develop or modify programs to ensure they meet industry-recognized and/or postsecondary credentials; (5) analyze the state and regional education and training resource and response capability; (6) research and promote work-based learning opportunities within business and industry; (7) develop integrated, accelerated, contextualized learning strategies; (8) provide flexible delivery methods; (9) provide career services, case management, and comprehensive support services; and (10) provide employment assistance and retention services.

## Programmatic and Pedagogical Innovations to Improve Student Outcomes: Field Guide of Workforce Innovations

This Skills Commons resource highlights programs in which new academic and industry credentials were created along with innovative teaching methods designed to engage students in effective learning activities. The innovations include industry-based certifications, new approaches to credit for prior learning, new competency-based education programs, and active learning strategies.

## Quality CTE Program of Study Framework

*Association for Career & Technical Education (ACTE)*—This evidence-based framework defines high-quality CTE across twelve elements. The CTE tools library provides links to strategies, case studies, professional development models, and toolkits designed to help practitioners develop and support success in each element.

## OCTAE's Programs of Study Design Framework

*U.S. Department of Education, Office of Career, Technical, and Adult Education (OCTAE)*—This framework contains 10 supporting elements that are viewed by CTE practitioners as instrumental for creating and implementing high quality, comprehensive programs of study.

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# Supporting Completion

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## Stackable Credentials Ideal for Today's Learners

Pathways built on stackable credentials offer learners accessible options for earning industry-valued credentials on the road to degree completion. Multiple exit points aligned to employment opportunities help students maximize their investment of time and financial resources.

Across the stackable credential programs examined for this publication, we found five common strategies used by colleges to facilitate student completion:

1. **Schedule courses to accommodate working students**
2. **Leverage online instruction**
3. **Award credit for prior learning**
4. **Make college more affordable**
5. **Support pathways aligned to local needs**

Each of these strategies is examined in the following sections.

### **STRATEGY 1** Schedule courses to accommodate working students

For working adults, participation in on-campus daytime instruction can be difficult. For students who work at night or have childcare responsibilities during the day, the opposite is true. This scheduling conundrum is not new for colleges, but the administrative challenges presented by offering classes “round the clock,” on weekends, or in compressed formats to accommodate working students can be complex.

The following examples highlight how colleges have adopted a wide range of approaches to scheduling and course sequencing to address common barriers to enrollment and persistence.

- **Scheduling courses in shifts—Gateway Technical College** schedules automotive technology courses in shifts that mirror the structure of work in its Midwest industrial region. Students can enroll in morning courses (7:00 A.M.–noon), afternoon courses (noon–5:00 P.M.), or evening courses (5:00–10:00 P.M.) while maintaining full- or part-time employment. Gateway presents its program in a concentrated format. Students move through the program one course at a time; each course lasts seven weeks. After completing a course, students move on to the next course in the program. This intensive, focused program (co-





designed by regional employers and Gateway faculty) has worked particularly well for courses in the automotive field. Students' progress through training in cohorts, which helps them build professional networks and communities of support.

- **Offering daytime courses when childcare is most available**—The I-CATCH (Innovations in Access to Careers in Health Care) program led by **Edmonds Community College (Lynnwood, WA)** serves many single parents who have limited educational experience. For these students, attending courses during the day, when childcare is easier to access, works most effectively. Edmonds partners with three other colleges—Everett, Skagit Valley, and Whatcom—on the I-CATCH program. Courses are offered both in-class and online, with different course options available on the four college campuses. I-CATCH offers each participant a laptop computer and Wi-Fi, if needed, which can be earned once a qualified certificate is completed. ([Learn more.](#))
- **Using a flexible program design**—For more than 20 years, **Kellogg Community College (Battle Creek, MI)** has offered its industrial trades programs using a flexible design. The programs are open entry, providing students the option to enroll in a module at any time during the calendar year, and giving them up to 12 months to complete training module(s). The programs provide a self-paced learning environment in which students receive individualized instruction using modularized, competency-based technical training. This approach allows the college to better accommodate adult learners who also work, sustain the enrollment numbers required to maintain the programs, and expand and contract quickly when large-scale shifts in industry occur. ([Learn more.](#))

## **STRATEGY 2** Leverage online instruction

Online instruction can make programs available to a wide range of students with diverse schedules. However, evidence indicates that in-person instruction is critical for teaching hands-on skills, building a sense of community, and keeping students on track. Below are examples of colleges that use a mix of delivery strategies to engage students and help them master essential skills.

- **Online coursework**—In the Fast Track version of its logistics program, Harper College combines classroom and online learning to enable students to complete a series of four certificates in supply chain management in one year. ([Learn more.](#))
- **Virtual classroom**—**South Central College (Faribault, MN)** uses videoconferencing technology to provide an interactive virtual

classroom experience for working students. The Live Online program delivers live, instructor-led trainings in manufacturing, business, and workplace safety. Learners can participate at the workplace or at home using a computer, internet connection, and video camera. ([Learn more.](#))

- **Hybrid instructional model—Hillsborough Community College** structured its engineering technology program to accommodate the needs of working professionals who commute up to 90 minutes to complete stackable certificates in automation, lean manufacturing and pneumatics, and hydraulics. To minimize the potential barrier of such a long commute—and time away from family—lecture materials are online, and students sign up for lab time on various equipment. Labs are open most of the day and early evening and are staffed by either an engineering technology faculty member or a lab technician. ([Learn more.](#))

### **STRATEGY 3 Award credit for prior learning**

At colleges across the country, short-term credentials are offered to meet local workforce needs. Unfortunately, how credit is awarded for completion of these credentials can range from seamless to non-existent. Often, short-term certificates completed through continuing education or workforce development divisions at a college are disconnected from an institution’s credit-based programs, even when the content delivered is the same. This disconnect prevents many individuals from earning credit toward a degree because there is no clear pathway for them to do so.

A similar challenge is presented when an incumbent worker, a veteran, or a career changer, for example, returns to formal education with some of the skills needed for a chosen career but no college credit to build on. Awarding credit for prior learning (CPL) such as military or work experiences is one method of addressing this issue. It is a proven strategy for increasing credit attainment and degree completion, especially for students facing significant barriers (Council on Adult and Experiential Learning, 2016). Below are examples of methods colleges are applying to award credit for prior learning.

- **Mapping military service**—To ensure veterans could receive credit for occupational training they completed while in military service, **South Central College** staff participated in the Southeast Minnesota Collaborative, which developed an online tool for mapping military transcripts to academic programs. This prompted college leaders to develop a comprehensive and cohesive set of CPL policies and procedures that could be applied across the institution. The college employs a CPL Coordinator who works with faculty to assess how CPL

“**A**warding credit for prior learning (CPL) ... is a proven strategy for increasing credit attainment and degree completion, especially for students facing significant barriers.”

could be used to award academic credit within their programs of study and to provide professional development opportunities. The CPL Coordinator also works closely with students to help them understand the various avenues by which they can pursue CPL (e.g., portfolio review, military transcript, occupational licensure or industry certification, standardized test, challenge exam). ([Learn more.](#))

- **Bridge program**—In preparing to implement a new emergency medical services associate degree program, **Mitchell Community College (Statesville, NC)** recognized the need to serve students who were currently working in the field but needed a little more education to advance in their careers. The college created an emergency medical science bridge program that provides a mechanism for certified but non-degreed paramedics to earn the emergency medical services associate degree by completing course requirements outside the paramedic subject area. Most students can complete the program in one year or less because of the articulation of earned certifications. ([Learn more.](#))

The Michigan Coalition for Advanced Manufacturing collaborated to build capacity for meeting employer needs by articulating credit for industry-recognized credentials across all eight member colleges.

- **Articulation agreements**—Through the **Michigan Coalition for Advanced Manufacturing (M-CAM)**, funded by a U.S. Department of Labor Trade Adjustment Assistance Community College and Career Training (TAACCCT) grant, eight Michigan community colleges collaborated to build capacity within their institutions to meet the needs of manufacturing employers. To build a cohesive education model for employers in the state, faculty across all eight colleges identified industry-recognized credentials that could be embedded within their non-credit and credit advanced manufacturing programs across four program areas—welding, CNC machining, multi-skilled technician, and manufacturing production and assembly. This collaboration led to all eight college presidents signing an articulation agreement to award credit for education at coalition colleges. The agreement marked the first time in the state’s history that community colleges agreed to align transfer credit among their advanced manufacturing programs. The agreement allows students to apply credits earned through an M-CAM program at any one of the coalition colleges, and encourages continued education for ongoing advancement. By aligning programs to industry-recognized standards and using third-party industry certifications as a basis for awarding academic credit, the colleges built cross-consortium consistency into their training programs and articulation agreements with Eastern Michigan University and Ferris State University. (Read an [issue brief](#) to learn more, or delve into the M-CAM [full report](#).)

TUTORIALS are available to offer more information on this topic:

- *Exploring Credit for Prior Learning* presented by Jaime Spaciel of Gateway Technical College (Kenosha, WI)
- *Industry Credentials as a Basis for Articulation* presented by Julie Parks of Grand Rapids Community College (Grand Rapids, MI)

See the [Perkins Collaborative Resource Network](#) website.



#### **STRATEGY 4** Make college more affordable

It goes without saying that the cost of college education is a barrier to credential attainment for many students. The decline in state support for public colleges has resulted in tuition increases, exacerbating the affordability problem for many students, even at community colleges—historically among the most accessible sources of postsecondary education in the country (United States Government Accountability Office, 2014<sup>1</sup>).

The colleges interviewed for this publication emphasized the importance of financial aid to students pursuing stackable credentials yet lamented the complexity of existing financial aid programs. Several colleges noted that the easiest way to access financial aid is to help students find ways to enroll in college full-time. As noted previously, colleges often use creative scheduling coupled with online delivery of course content to minimize seat time on campus and to make instruction accessible and flexible, enabling even working adults to enroll full-time.

One effective way to make college more affordable is to put in place earn-and-learn models that enable students to combine paid work experience with instruction. This helps students maintain full course loads (thus qualifying for financial aid) while earning modest incomes.

The following paragraphs describe initiatives designed to make college more affordable.

- **Apprenticeships**—Students at **Harper College** have the opportunity to participate in apprenticeships in nine program areas, ranging from banking and finance to cybersecurity and supply chain management. Participating employers absorb at least some of the cost of training, and classroom instruction is complemented with on-the-job learning and experience. The employers train students specifically to work in their firms while the college provides the apprenticeship-related instruction. Student apprentices benefit because as employees they



<sup>1</sup> <https://www.gao.gov/assets/670/667557.pdf>

earn wages while in school and have all or part of their tuition subsidized by their employers. ([Learn more.](#))



- **SNAP funding**—The **Oregon Community College SNAP 50/50 Consortia** is a reimbursement, third-party match program budgeted and administered federally by Food and Nutrition Services and statewide by the Oregon Department of Human Services. Colleges are reimbursed for 50 percent of their expenses related to the project, while the other half comes from existing college resources, such as state, local grant, or foundation funding. The project’s goal is to increase employment and training opportunities for Oregonians receiving SNAP, which offers food benefits to eligible low-income individuals and families. Through the SNAP 50/50 Consortia, Oregon community colleges provide extra support and resources to help students complete their GED, increase their English skills, earn a college credential, complete an internship, and/or find a job that leads to a living wage career. The statewide project is using Oregon’s nationally recognized career pathways framework and a skills-based approach to support SNAP recipients as they access education and training, and transition into employment. The colleges’ career pathways help students advance in their education and careers and offer three-to-nine-month stackable certificates that lead to jobs and degrees. ([Learn more.](#))
- **Make all program costs eligible for financial aid**—One of the biggest expenses for **Gateway Technical College**’s automotive students is purchasing their own tools. Many dealerships in the area expect technicians to own and maintain their own tools, which can present a major financial barrier to getting started in the industry. During the program, Gateway students use the automotive department’s tools, but upon graduation they receive their own tools to take to the workplace. The cost of these tools is included in program tuition, along with uniforms and books required for participation. This allows the entire cost of the program, including the purchase of tools which is considered a program fee, to fall under a single financial aid-eligible tuition cost. ([Learn more.](#))
- **Free certification exams**—With an overwhelmed testing center unable to handle student demand for certification exams and a student population that could not afford exam fees, **Rowan-Cabarrus Community College (Salisbury, NC)** launched *Test Fest*. The daylong event offers open lab time during which IT faculty members proctor certification exams for students who have completed the courses corresponding to the exams offered. For example, students who

completed the entry-level Networking and Security course can sit for the Microsoft Technology Associate Exam in those areas. *Test Fest* allows students to earn an industry certification without paying exam or proctoring fees. ([Learn more.](#))

- **ATB innovations**—For many students, access to financial aid is essential to their participation in postsecondary education. For adults lacking a high school diploma, that access is even more challenging. The Ability to Benefit (ATB) provisions (34 C.F.R. § 668.141–156) of the Higher Education Act, as amended, provide an alternative path to eligibility for Federal Student Aid for adults who lack a high school diploma or its equivalent. In addition to participating in an eligible career pathway program, eligible students only need to pass an approved test, successfully complete six hours of college credit, or where applicable, be admitted using an approved state process. Several states are implementing ATB innovations to enable a greater number of adult learners to benefit from high-demand career pathways programs. ([Learn more.](#))

#### **STRATEGY 5** Support pathways aligned to local needs

Meeting the diverse needs of today’s learners while preparing them for a rapidly changing workplace requires an intensive approach to student support services and advising. Colleges interviewed emphasized the importance of helping students develop clear goals for education and employment, understand how different skills and competencies connect to local employment options, and chart a course of study that supports their college and career goals. Following are examples of the diverse approaches colleges use to provide this support.

- **Embed career exploration in coursework—Moraine Valley Community College** offers an introductory course on careers in information technology (IT). Students learn about the different branches and technologies within the IT field (e.g., cybersecurity, mobile, cloud, and database design), the range of employer types (e.g., consulting firms, in-house IT departments, and developer shops), and how different kinds of training lead to jobs. Students are encouraged to think about the types of jobs and technologies that most appeal to them and align their course selection with their career goals. ([Learn more.](#))
- **Interdisciplinary certificates and degrees**—The rapid pace of technology advancements is affecting the technical workforce in ways that a “one-size-fits-all” program cannot support. To keep pace with the evolving and varied needs of its employer partners, **Ivy Tech Community College** developed interdisciplinary certificates and

Help students:

- Develop clear goals for education and employment.
- Understand how different skills and competencies connect to local employment options.
- Chart a course of study that supports their college and career goals.



degrees. These vehicles enable the college to offer more elective classes, making it possible to customize programs and embedded credentials to local workforce needs and to the goals and/or required qualifications of individual companies. This model has also enabled the college to award degrees to journey workers who previously had a “collection of credits” but no academic credential. The expansion of the Interdisciplinary Degree has resulted in an increase in program completions (up 45 percent from the previous year). Ivy Tech currently has eight Interdisciplinary Degree offerings with plans underway to expand further. ([Learn more.](#))

- **Guided pathways**—The guided pathways reform movement has prompted many community colleges to build upon their career pathways efforts with a framework that maps pathways to students’ end goals; helps students select, enter, and stay on a pathway; and ensures students are learning. **Monroe Community College’s (Rochester, NY)** guided pathways model, the Schools @ MCC, provides students with the guidance and services they need to successfully navigate college and complete their programs. With the Schools @ MCC, every program prepares students to pursue employment and further education in fields of importance to the college’s service area. In 2018–2019, 96 percent of students were assigned a specific pathway in one of MCC’s seven schools. To help facilitate this, MCC faculty and staff completed initial program mapping by four-semester sequences, incorporated and linked programs to their web-based career exploration tool (*Career Coach*), and streamlined intake processes to optimize the student experience. Being on a pathway to completion from the start helps students more easily connect with available resources and approach their studies with career and transfer goals in mind. ([Learn more.](#))
- **Maintaining connections to student support services**—The I-CATCH program led by **Edmonds Community College** offers a comprehensive approach to academic advising. Program staff members are proactive in monitoring, assisting, and guiding students throughout the program. I-CATCH employs community navigators, employment navigators, and an academic advisor at Edmonds’ main campus, and engages faculty to serve as advisors for those campuses that do not have a designated I-CATCH advisor. Navigators and advisors work with students to develop their career pathways and serve as conduits to the non-academic assistance they may need—such as childcare, transportation, and housing. I-CATCH’s comprehensive advisory services are underwritten by a federal Health Professions Opportunities Grant through the U.S. Department of Health and Human Services. ([Learn more.](#))

## Aligning Workforce Development Programs with Industry Sector Needs: Field Guide of TAACCCT Innovations

This Skills Commons resource provides information and video interviews highlighting strategic alignment between colleges, the workforce system and business and industry on topics such as aligning longitudinal data systems, creating industry sector strategies, enhancing employer engagement, collaborating with community-based organizations, and developing work-based learning and apprenticeship opportunities.

### Career Pathways Checklist

ED-OCTAE—The *Workforce Innovation and Opportunity Act (WIOA)* calls for career pathways systems that make it easier for all Americans to attain the skills and credentials needed for family-supporting jobs and careers. This checklist is designed to help planners and managers of career pathways programs, financial aid counselors, and administrators determine the extent to which a program meets the requirements for career pathways in Sec. 3(7) of *WIOA* (29 U.S.C. § 3102(7)).

## Credit for Prior Learning Guide: A Practical Guide for Community Colleges

*Marsha A. Danielson, Ed.D.*—This guide offers implementation strategies for community college faculty, staff, and administrators with some familiarity of credit for prior learning (CPL). It takes the reader from the research and planning stage through marketing and public relations; provides guidance about administrative support, faculty, staff, and student engagement; and shares best practices from the Minnesota State system of colleges and universities and other institutions successfully implementing CPL.

## Strengthening Student Support Services to Improve Student & Worker Outcomes: Field Guide of TAACCCT Innovations

This Skills Commons resource shares strategies, tools and a professional training course developed for career coaches, navigators, and success coaches.





# Sustaining Stackable Credentials

## Employing Good Data and Evaluation Practice

Data management is essential to the success of stackable credentials programs—especially when the approach is new to your institution or industry partners. Data can help you understand how implementation is working (or not) and why, so you can adjust accordingly and improve along the way. You will also need data as you seek to broaden support for your approach or to replicate it across program areas. Finally, because the stackable credentials approach is a newer strategy, shared evidence of effectiveness, success metrics, and models are still emerging. The field needs to learn from your experiences as much as you do.

Plan to collect a range of data types depending on the goals your program seeks to achieve. The importance of different data types, the balance between them, and the level of effort each requires will vary with your specific goals and circumstances. Common data categories include the following:

“**D**ata management is essential to the success of stackable credentials programs—especially when the approach is new to your institution or industry partners.”

- **Process documentation**, especially for new initiatives. This includes planning-level work—how decisions were made, with what tools, by whom and why, and in what context—and information that would help you or another program replicate and improve the process. It can take the form of meeting minutes, shared files in online workspaces, or photography and video—whatever is needed to document what was done to plan and launch the effort so that others can understand it.
- **Activity-level data** for each program event. This should include duration, sequence, location, structure, time of day, and any other environmental factor that would impact program outcomes.
- **Outcome data** for participants. This should include rates of program completion, credential attainment, job placement (and wages), and participation in further education.
- **Demographic data**, such as ethnicity, gender, age, income, English language proficiency, and use of the Ability to Benefit Test. Demographic data can help assess the outcomes of the program for different groups and point to areas that need improvement.

- **Experiential data** reported by participants, employers, and other stakeholders. This can take any of several forms—survey responses, interviews, photographs, videos, and even postings on social media. This kind of data reveals important ways to improve programs and conveys the impact of learning experiences in ways quantitative data such as completion rates cannot.

Once you decide what data you need, you should design a strategy for collecting it. Consider the following as you design your data collection approach:

- **Advance planning**—Data is essential for analyzing program efficacy, but collecting what you need when you need it can pose challenges, especially when data collection is shared among different partners. Work with your partners to identify the data you need and develop a strategy for collecting it. The strategy should include processes for the following:
  - **Leveraging existing data:** Certain kinds of data, such as wages and employment status, are collected by state employment agencies. In recent years, employment agencies in more than 41 states have worked with education and human service partners under federal grants on comprehensive databases or connected data systems that track the employment and earnings of participants in public programs over time. Other states have invested in data system improvements and data sharing on their own. Although the laws governing data sharing vary from state to state, most employment agencies can track participant wage and employment outcomes at the individual level and share findings (at least in the aggregate) upon request. Inquire about what data is accessible to you (and in what form). Your institution may be required to have its own data-sharing agreement. Plan to work through the specifics of collection, transmission, and storage in detail. This process takes time, but the result is less duplication of effort across agencies and higher-quality outcome data (that is not dependent on self-reporting).
  - **Following up with students:** Collect survey or other qualitative data from students as they progress through the program, both to inform program improvement and to complement quantitative outcome data. This can be challenging, as it is often hard to reach students after they exit your program. Develop methods for keeping in touch with students and collect complete contact information so you can reach students in different ways. Consider a range of data collection methods, such as on-the-job interviews,

“**D**ata is essential for analyzing program efficacy, but collecting what you need when you need it can pose challenges, especially when data collection is shared among different partners.”



text-based surveys, video diaries, and social media posts. Establish the expectation early on that the program will be following up, explain why, and ask students to sign a statement indicating they understand the importance of follow-up. Students will be more willing to share updates and keep in touch if they understand why information about them is needed.

- **Using data to learn and improve**—Reflection is essential for learning and improving, so provide opportunities for program personnel to reflect on the data collected. Periodic debriefings will reveal what data matters most and will help you and your partners interpret the data collected. Key questions include the following:
  - What worked well/less well for the program? For students? For employers? (Validate with data where possible.)
  - What are the most important outcomes achieved (or not achieved)?
  - What do we not know but should know?
  - What insights have we gained that can improve our practice going forward?



**TO LEARN MORE** on this topic, view the tutorial “Learning What Works: Data and Documentation in an Evidence-based World,” presented by Kristin Wolff of Social Policy Research Associates. The tutorial is available on the [Perkins Collaborative Resource Network](#) website.

Examples of methods colleges are using to better understand how stackable credentials are improving labor market outcomes for students are described below.

- **Gathering information from students**—Respondents at **Harper College** noted that three kinds of outcome data would be helpful in assessing stackable credentials: data on credentials completed, industry certifications completed, and the earnings of program graduates. Until recently, community colleges have not been able to access administrative data on employment outcomes for students, due to the confidentiality of this data. Harper College currently asks students to provide information directly to the college about their employment status at the conclusion of the program. In addition, the college entered into a partnership with the Illinois Department of Employment Security to gather wage data on graduates. This data contributes to the ongoing assessment of the effectiveness of these

programs in helping students gain employment in fields with family-sustaining wages. The challenge is that this data is only available if the graduates are working in Illinois. Ways to expand this across the nation are being explored.

- **Embedding individual-level reporting in the program—Moraine Valley Community College** has created an information system used to store data on every student who completes the first course in the IT department, a required orientation to IT careers. As part of the course, every student builds a career pathway plan, which can be updated. The program tracks every enrolled student by gathering information on progress made over time in realizing career plans.
- **Leveraging regional labor market intelligence—Monroe Community College’s Economic and Workforce Development Center (EWD Center)** is recognized for curating and using labor market data to provide a deeper understanding of regional employers’ workforce demands and to help students make informed career choices. As part of this work, the EWD Center has developed an innovative labor-linked program model that tracks graduates 5+ years after graduation to better understand where career technical graduates have been hired and how they have persisted in industry and performed in wage progression. The EWD Center publishes this data for the region on its [website](#). This informed, data-driven approach has helped the college modularize credit and non-credit programs by creating more market-driven stackable career pathway program offerings. Providing actionable regional labor market analyses on the website has supported regional educators and workforce and economic developers by allowing them to apply occupation-based analyses within specific occupational groups and workforce clusters.

## Considerations for the Future

Stackable credentials are designed to facilitate student progress toward economic mobility and a degree. Ensuring institutional policies and procedures ease student progress rather than hinder it can be a challenge. Two key issues that should be top of mind in your efforts to offer stackable credentials are ensuring that credit can be earned and that the credentials you award have currency in the local labor market.

### Awarding Credit for Credentials

Consider these scenarios: If a student completed a short-term certificate as part of a non-credit program at your college, what mechanisms are in place to provide credit for that course work when the student wants to pursue their next credential or a degree? Will it be seamless at your college but

“**S** stackable credentials are designed to facilitate student progress toward economic mobility and a degree. Ensuring institutional policies and procedures ease student progress rather than hinder it can be a challenge.”

not if the student moves and wants to pursue their next credential at another community college? If the student earned an industry certification, does your college have crosswalks in place to articulate credit based on the competencies represented by the certification?

The methods for addressing this complex issue—how credits are awarded or transferred—are as varied as the communities and employers that community colleges serve. Several examples of local strategies and related tools are mentioned in previous sections of this publication. Additional strategies can be learned from the work of **Ivy Tech Community College**. ([Learn more.](#))



**TO LEARN MORE** on this topic, view the tutorial “Breaking Down Silos to Build In-demand Pathways: Strategic Use of Non-credit and Credit Offerings to Meet Industry Need and Accelerate Student Success.” The tutorial, presented by Tom Crampton of Mott Community College, is available on the [Perkins Collaborative Resource Network](#) website.



### **Maintaining Credential Currency in the Labor Market**

Because technology is always changing and economic conditions are never static, the job of reviewing and improving a program’s relevance to industry needs is never complete. Skills that are in demand today may be obsolete tomorrow, depending on the program area. There is no silver bullet for future-proofing your workforce, but responsive programs aligned to the technologies and skill needs of local industries will go a long way. The more often you can engage in meaningful dialogue with employers about how the work they do is changing, the better equipped you will be to modify program content incrementally.

The following examples describe the steps that two of our sample colleges are taking to keep pace with changes in the workplace.

- **Obtaining and using market trend data**—Harper College provides ongoing support in its program review and program revision processes to ensure program relevance to industry. Harper College’s experience in developing its supply chain management and logistics certificates is an example of this. After initially using labor market data to determine the field was a growing industry in the region, the college invited industry representatives to educate program administrators and faculty about industry trends and in-demand skills. Using this information, the college developed three stackable certificates to prepare students for entry-level employment in supply chain management and logistics. Trend data suggests the industry continues

to grow, and the required level of skills is increasing. In response, the college launched an associate degree in supply chain management and logistics and hired a full-time coordinator with industry experience to manage the program and ensure it keeps pace with the evolving industry. ([Learn more.](#))

- **Conducting a Knowledge, Skills, and Abilities (KSA) analysis with employers**—To keep program content in the constantly evolving IT field current, the National Convergence Technology Center at Collin College conducts a KSA Analysis Meeting with its employer partners once a year. The meeting uses a process to enable employers to review and vote on the importance of KSAs within a course or program. KSAs not listed may be added by employers as they discuss the changing roles of work. The meeting relies on discussion and a voting process, both equally important. Faculty use the results of the meeting to crosswalk the prioritized KSAs to the existing courses and identify overlaps, gaps, and redundancies. New courses may be developed, and existing courses modified based on the KSA analysis results. Updates on program changes are provided to employers to ensure that the feedback loop is completed. In addition to the in-person KSA meeting, employer representatives meet virtually once a quarter to discuss emerging trends and related skill needs.

**LEARN MORE** about the KSA meeting in the tutorial: *Developing a Business Industry Leadership Team to Enhance Employer Engagement*. The tutorial, presented by Ann Beheler of Collin College, is available on the [Perkins Collaborative Resource Network](#) website.





## Concluding Observations

Students benefit from certificates and diplomas that can be stacked toward a degree and offer shorter, more accessible pathways to a college credential. Institutions can effectively respond to local industry needs by engaging employers in the design and development of pathways that include multiple exit points aligned to industry-valued credentials. Changes in institutional policies or procedures are often needed to provide stackable credential opportunities for students.

Stackable credentials are not a system, or even a program, in and of themselves. Rather, they are key ingredients in a broader ecosystem that supports career pathways and lifelong learning.

Advocates and partners are critical to the success of this ecosystem—both internally, within the community college, and externally, with employers, industry associations, economic development organizations, and education partners. While many models exist to support the design and development of stackable credentials, ultimately, local context outweighs all else. Your ability to adapt existing models and strategies to your local environment—the employer community, economy, and learner populations you support—is what will ensure the credentials ultimately offered improve completion rates and enhance the talent pipeline.



### **The Career Pathways Toolkit: An Enhanced Guide and Workbook for System Development. Element 6: Measure System Change and Performance**

*US-DOL*—This resource from the U.S. Department of Labor is designed to guide state and local leaders in building, implementing, and sustaining career pathways systems and programs. Element 6 is intended to help partnerships define desired system, program, and participant outcomes; identify the data needed to measure those outcomes; implement a process for collecting, storing, tracking, sharing, and analyzing data; and design and implement a plan for reporting system and program outcomes.

# APPENDIX

## Glossary

**Apprenticeship-related instruction (ARI):** Course instruction that meets the classroom training requirements of registered apprenticeship programs. Depending on the program or education institution, ARI can also count as academic credit toward degrees or certificates.

**Bridge programs:** Designed for individuals who require training or skill enhancement to meet minimum requirements for participation in degree or certificate programs. Bridge programs allow learners to start from their current skill levels and work toward enrollment in training programs they ultimately seek to complete.

**Career and technical education (CTE):** As defined in the Carl D. Perkins Career and Technical Education Act of 2006, as amended by the Strengthening Career and Technical Education for the 21st Century Act (Perkins V) (20 U.S.C. § 2302(5)), the term “career and technical education” means organized educational activities that (A) offer a sequence of courses that— (i) provides individuals with rigorous academic content and relevant technical knowledge and skills needed to prepare for further education and careers in current or emerging professions, which may include high-skill, high-wage, or in-demand industry sectors or occupations, which shall be, at the secondary level, aligned with the challenging State academic standards adopted by a State under section 1111(b)(1) of the Elementary and Secondary Education Act of 1965; (ii) provides technical skill proficiency or a recognized postsecondary credential, which may include an industry-recognized credential, a certificate, or an associate degree; and (iii) may include prerequisite courses (other than a remedial course) that meet the requirements of this subparagraph; (B) include competency-based, work-based, or other applied learning that supports the development of academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of an industry, including entrepreneurship, of an individual; (C) to the extent

practicable, coordinate between secondary and postsecondary education programs through programs of study, which may include coordination through articulation agreements, early college high school programs, dual or concurrent enrollment program opportunities, or other credit transfer agreements that provide postsecondary credit or advanced standing; and (D) may include career exploration at the high school level or as early as the middle grades (as such term is defined in section 8101 of the Elementary and Secondary Education Act of 1965).

**Career pathway:** As defined in the *Workforce Innovation and Opportunity Act (WIOA)* (29 U.S.C. § 3102(7)), the term “career pathway” means a combination of rigorous and high-quality education, training, and other services that: (A) aligns with the skill needs of industries in the economy of the state or regional economy involved; (B) prepares an individual to be successful in any of a full range of secondary or postsecondary education options, including registered apprenticeships; (C) includes counseling to support an individual in achieving the individual’s education and career goals; (D) includes, as appropriate, education offered concurrently with and in the same context as workforce preparation activities and training for a specific occupation or occupational cluster; (E) organizes education, training, and other services to meet the particular needs of an individual in a manner that accelerates the educational and career advancement of the individual to the extent practicable; (F) enables an individual to attain a secondary school diploma or its recognized equivalent, and at least one recognized postsecondary credential; and (G) helps an individual enter or advance within a specific occupation or occupational cluster.

**Certificate:** Formal recognition of the completion of a course of study intended to teach specific skills usually associated with a professional field or set of related occupations

**Competency-based education:** A program of study based on the mastery of specific information and skills tied to application in the workforce. Competency-based programs award credentials based on demonstrated ability rather than participation in course instruction.

**Credit for prior learning:** See Prior learning assessment

**Dual-credit programs:** Allow high school students to enroll in community or technical college courses, receiving both high school and college credit at the same time—credit that can also be transferred to other colleges and universities.

**Industry-recognized credentials:** An industry-recognized credential is one that either is developed and offered by or is endorsed by a nationally recognized industry association or organization representing a sizeable portion of the industry sector, or a credential that is sought or accepted by companies within the industry sector for purposes of hiring or recruitment, which may include credentials from product vendors.

**Industry skill standards:** The knowledge and skills required for employment in specific industries. Employers or industry boards usually identify and define these skills.

**Prior learning assessment:** An assessment process that enables students to earn college credit for learning acquired on the job, through professional or military training, online, or through other education programs. Prior learning assessment (PLA) comprises skill tests, written examinations, work portfolio assessments, or some combination and can accelerate credential earning and degree acquisition, especially for nontraditional college students. May also be referred to as Credit for Prior Learning (CPL).

**Program of study:** As defined in *Perkins V* (20 U.S.C. § 2302(41)), the term “program of study” means a coordinated, nonduplicative sequence of academic and technical content at the secondary and postsecondary level that— (A) incorporates challenging State academic standards; (B) addresses both academic and technical knowledge and skills, including employability skills; (C) is aligned with the needs of industries in the economy of the State, region, Tribal community, or local area; (D)

progresses in specificity (beginning with all aspects of an industry or career cluster and leading to more occupation-specific instruction); (E) has multiple entry and exit points that incorporate credentialing; and (F) culminates in the attainment of a recognized postsecondary credential.

**Registered apprenticeship programs:** Earn-and-learn programs that offer classroom instruction and on-the-job training linked to employment. Employers hosting apprentices are integral to the process and typically hire apprentices who earn their credentials. Apprenticeships can be registered at the state or federal level (or both) and have specific requirements for the number of hours apprentices must participate in classroom and on-the-job training.

**Stackable credential:** A credential is considered stackable when it is part of a sequence of industry-informed credentials that can be accumulated over time to expand an individual’s competencies, help him or her advance within a career pathway, and earn family-sustaining wages.

**Student support services:** Services designed to facilitate student success in educational programs. These may include career planning and development, case management, mentoring, coaching and tutoring, work-friendly scheduling, federal and state need-based financial aid, job search skills training, job placement assistance, and referral to providers of other supportive services (e.g., transportation, childcare, and Supplemental Nutrition Assistance Program (SNAP) benefits).

**Workforce Innovation and Opportunity Act (WIOA):** The 2014 Federal statute that establishes federal policy direction and appropriates federal funds for employment and training programs. These programs include training for disadvantaged youths, adults, and dislocated workers; adult education and literacy; employment services and labor market information; and rehabilitation services for individuals with disabilities. Compared to previous legislation, *WIOA* encourages a system-level view of education and training, encouraging blended investments and strong partnerships between programs and agencies serving people who seek to learn, work, or advance in their careers.

## Quick Reference

Following is a compilation of the tools presented in the preceding sections. *All titles are clickable.*

### INTRODUCTION

#### What Is a Credential?

*Association for Career and Technical Education*—This brief provides an overview of common credentials including certificates, certifications, licenses, and degrees. For each type of credential, the brief identifies the type of entities the credential is awarded by, what the credential results from, the length of time required to complete it, and how the credential is maintained.

#### Perkins Collaborative Resource Network (PCRN)

*U.S. Department of Education Office of Career, Technical, and Adult Education (OCTAE)*—PCRN provides information about Career Pathways and strategies for assisting career and technical education students in acquiring the academic, employability, and technical skills that employers demand.

#### Career Pathways in Career and Technical Education

*CLASP*—This policy brief discusses the terms “career pathways” and “program of study,” explains the relationship between the two, and recommends steps for state alignment of career pathways and programs of study.

#### Expanding Opportunities: Defining Quality Non-Degree Credentials for States

*National Skills Coalition*—This paper explains the importance of building quality-assurance systems for non-degree credentials (NDC), proposing a definition of what constitutes high-quality NDCs and criteria for developing quality assurance systems. The criteria are aimed at helping states reduce equity gaps among historically underserved populations.

#### Impacts of Key Strategies on Non-degree Credential Completion by Adult Learners

*Lumina Foundation*—This resource consists of six reports focusing on the attainment and value of non-degree credentials. Using data derived from TAACCCT grant projects, researchers explored the potential for different community college strategies to improve attainment of non-degree credentials, and to examine labor market outcomes for adults earning these credentials.

#### Non-Degree Credential Quality: A Conceptual Framework to Guide Measurement

*Rutgers University*—Because of the broad range in quality and type of non-degree credentials, workers, employers, policymakers, and educational institutions cannot easily define or measure their value. Confusion is especially acute among historically underserved populations that may not have access to relevant information. To help alleviate this confusion, the authors of this report explored the issue of understanding and assessing the quality of non-degree credentials.

#### Stackable Credentials: Awards for the Future?

*Community College Research Center*—This paper asserts that the stacking of credentials—combining short-term awards either with other short-term awards or with degrees—has the potential to help align skill supply with skill demand, especially for low-income and first-generation college students. The authors identify three types of stacks—progression, supplemental, and independent—and note that those types are likely to have different labor market impacts and meet different student needs. The authors’ conclusions reflect analysis of national, survey, and college-system-level datasets.

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### EMPLOYER ENGAGEMENT

#### Advancing Credentials Employer Engagement Toolkit

*CORD*—This online toolkit is designed for community college practitioners to enhance their employer engagement efforts within a department or college wide. Five modules provide tools and resources to analyze current employer relationships, identify new ones, and manage the multiple (often overlapping) employer-engagement activities that are conducted across a college, and to help educators and employers better understand one another’s perspectives.

#### Business Industry Leadership Team (BILT) Toolkit

*National Convergence Technology Center*—The BILT toolkit was designed to serve as a guide for strengthening industry commitment to technical programs. The BILT model, originated by the National Science Foundation Convergence Technology Center of Excellence based at Collin College, puts businesses in a co-leadership role for college technical programs so they have direct input into the knowledge, skills, and abilities

(KSAs) that program graduates should possess 12–36 months into the future ultimately producing candidates that businesses are more likely to hire. Topics include benefits and elements of BILTs, member identification, and meeting logistics.

### **The Career Pathways Toolkit: An Enhanced Guide and Workbook for System Development. Element 2: Identify Industry Sectors and Engage Employers**

*US DOL*—This resource from the U.S. Department of Labor is designed to guide state and local leaders in building, implementing, and sustaining career pathways systems and programs. The toolkit is divided into six elements; Element 2 focuses on identifying in-demand industries and engaging employers. The toolkit includes worksheets to assist in planning and implementation.

### **Effective Employer Engagement Strategies**

This Skills Commons resource presents a range of employer engagement strategies used across different industry sectors during TAACCCT projects. The collection offers examples of how to deepen employer engagement at all levels of program design and implementation.

### **Employer Engagement by Community Colleges in New York**

*Federal Reserve Bank of New York*—Based on surveys of the 37 community colleges in the state of New York, this report highlights issues involved in obtaining and enhancing employer support for college-based workforce training programs and in overcoming hurdles to engagement. The report includes numerous examples of employer engagement in action.

### **Employer Engagement Toolkit: From Placement to Partners**

*Jobs for the Future*—This toolkit is a guide for training providers, workforce development organizations, community colleges, and other community-based organizations integrating employer engagement into core decision making. Four tools are provided: (1) Getting Ready. Where Are You Now?; (2) Targeting Your Relationships; (3) Becoming a Go-To Convener; and (4) Partnering on Program Design and Delivery.

### **Four Ways to Increase the Value of Short-Term Credentials: A Guide for Community Colleges**

*Jobs for the Future*—Although an increasing number of people are seeking specialized job skills and knowledge via alternative educational credentials, employers often do not recognize the value of those credentials. This report explores the causes of this misalignment and suggests ways community colleges can better align their

credentials with labor market need. The report explains differences among short-term credentials, describes characteristics of high-quality credentials, and provides examples of efforts to enhance the value and transparency of credentials.

### **Labor Market and Workforce Development System Data Toolkit**

*Corporation for a Skilled Workforce*—This toolkit is designed for anyone interested in better understanding what data and related resources are available to help answer questions about local and regional labor markets, existing and emerging talent pipelines, and the workforce development system in their cities and regions.

### **Next Generation Sector Partnership Training Manual and Toolkit**

*Institute of Networked Communities*—This resource is the product of fifteen years of lessons learned from sector partnerships across the US by the Institute of Networked Communities. It includes step-by-step guidance for regional teams to work together to build successful industry-led sector partnerships.

### **Reimagining Employer Engagement: A Toolkit for Providers**

*Aspen Institute*—This toolkit is designed to help workforce development practitioners establish and enhance relationships with employers in retail. The toolkit's tips and suggestions are also applicable to other sectors. Topics include finding employers, obtaining labor market information, marketing your services, overcoming employer objections, involving employers in your organization, and soliciting and using employer feedback.

### **Work-Based Learning Tool Kit**

*U.S. Department of Education Office of Career, Technical, and Adult Education (OCTAE)*—This tool kit provides state and local program administrators with information regarding the key components of work-based learning (WBL), including employer engagement.

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## **DESIGNING A PROGRAM WITH STACKABLE CREDENTIALS**

### **Discipline-Specific Competency Frameworks for Apprenticeships**

*Urban Institute*—The Urban Institute has created 26 frameworks for registered apprenticeships in eight fields: advanced manufacturing, energy, finance, health care, hospitality, information technology, transportation. The

competency-based frameworks represent input from employers, educators, and other workforce and training experts and can be used to fast-track the development of registered apprenticeships. For each occupation, the site provides a Work Process Schedule and Full Competency-Based Framework.

### **Building Credential Currency: Resources to Drive Attainment across K-12, Higher Education, and Workforce Development**

*Education Strategy Group*—This toolkit helps states identify non-degree (industry-recognized) credentials that are most valuable to students and employers, for the purpose of prioritizing those credentials in educational programs. The toolkit is designed to help state and local policymakers accomplish four objectives: identifying in-demand occupations and associated non-degree credentials; validating those findings with employers and creating prioritized statewide lists of the most valuable non-degree credentials; encouraging non-degree credential attainment through funding strategies, secondary-to-postsecondary articulation, and rigorous accountability; and reporting and monitoring credential attainment.

### **Resources for Working with Industry to Implement Competency Models**

*US DOL*—This site features resources of interest for those seeking to learn more about how U.S. DOL's competency models can benefit their workforce development efforts. (A competency model describes what knowledge, skills, and abilities are required for success in a given job, occupation, or industry.) Links include the Competency Model Clearinghouse and a series of short videos on cross walking competency models.

### **The Career Pathways Toolkit: An Enhanced Guide and Workbook for System Development.**

#### **Element 3: Design Education and Training Systems**

*US DOL*—This resource from the U.S. Department of Labor is designed to guide state and local leaders in building, implementing, and sustaining career pathways systems and programs. The toolkit, which includes writeable worksheets, is divided into six elements. Element 3 is intended to help practitioners (1) identify and engage education and training partners; (2) identify target populations, entry points, and recruitment strategies; (3) review, develop, or modify competency models with employers and develop and validate career ladders/lattices; (4) develop or modify programs to ensure they meet industry-recognized and/or postsecondary credentials; (5) analyze the state and regional education and training resource and response

capability; (6) research and promote work-based learning opportunities within business and industry; (7) develop integrated, accelerated, contextualized learning strategies; (8) provide flexible delivery methods; (9) provide career services, case management, and comprehensive support services; and (10) provide employment assistance and retention services.

### **Programmatic and Pedagogical Innovations to Improve Student Outcomes: Field Guide of Workforce Innovations**

This Skills Commons resource highlights programs in which new academic and industry credentials were created along with innovative teaching methods designed to engage students in effective learning activities. The innovations include industry-based certifications, new approaches to credit for prior learning, new competency-based education programs, and active learning strategies.

### **Quality CTE Program of Study Framework**

*Association for Career & Technical Education (ACTE)*—This evidence-based framework defines high-quality CTE across twelve elements. The CTE tools library provides links to strategies, case studies, professional development models, and toolkits designed to help practitioners develop and support success in each element.

### **OCTAE's Programs of Study Design Framework**

*U.S. Department of Education Office of Career, Technical, and Adult Education (OCTAE)*—This framework contains 10 supporting elements that are viewed by CTE practitioners as instrumental for creating and implementing high quality, comprehensive programs of study.

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## **SUPPORTING COMPLETION**

### **Aligning Workforce Development Programs with Industry Sector Needs: Field Guide of TAACCCT Innovations**

This Skills Commons resource provides information and video interviews highlighting strategic alignment between colleges, the workforce system and business and industry on topics such as aligning longitudinal data systems, creating industry sector strategies, enhancing employer engagement, collaborating with community-based organizations, and developing work-based learning and apprenticeship opportunities.

### **Career Pathways Checklist**

*ED-OCTAE*—*The Workforce Innovation and Opportunity Act (WIOA)* calls for career pathways systems that make

it easier for all Americans to attain the skills and credentials needed for family-supporting jobs and careers. This checklist is designed to help planners and managers of career pathways programs, financial aid counselors, and administrators determine the extent to which a program meets the requirements for career pathways in section (3)(7) of *WIOA* (29 U.S.C. § 3102(7)).

#### **Credit for Prior Learning Guide:**

##### **A Practical Guide for Community Colleges**

*Marsha A. Danielson, Ed.D.*—This guide offers implementation strategies for community college faculty, staff, and administrators with some familiarity of credit for prior learning (CPL). It takes the reader from the research and planning stage through marketing and public relations; provides guidance about administrative support, faculty, staff, and student engagement; and shares best practices from the Minnesota State system of colleges and universities and other institutions successfully implementing CPL.

##### **Strengthening Student Support Services to Improve Student & Worker Outcomes: Field Guide of TAACCCT Innovations**

This Skills Commons resource shares strategies, tools and a professional training course developed for career coaches, navigators, and success coaches.

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## **SUSTAINING STACKABLE CREDENTIALS**

### **The Career Pathways Toolkit: An Enhanced Guide and Workbook for System Development.**

#### **Element 6: Measure System Change and Performance**

*US-DOL*—This resource from the U.S. Department of Labor is designed to guide state and local leaders in building, implementing, and sustaining career pathways systems and programs. Element 6 is intended to help partnerships define desired system, program, and participant outcomes; identify the data needed to measure those outcomes; implement a process for collecting, storing, tracking, sharing, and analyzing data; and design and implement a plan for reporting system and program outcomes.