INTEGRATING ACADEMIC PROGRAMS, THIRD-PARTY INDUSTRY CREDENTIALS, AND LABOR MARKET SKILL NEEDS

A Guide for Community Colleges

DECEMBER 2025

workcred
an affiliate of *ANSI*

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Formed in 2014, Workcred is an affiliate of the American National Standards Institute (ANSI). Its mission is to strengthen workforce quality by improving the credentialing system, ensuring its ongoing relevance, and preparing employers, workers, educators, and governments to use it effectively. Workcred's vision is a labor market that relies on the relevance, quality, and value of workforce credentials for opportunities, growth, and development.

Suggested citation:

Workcred, *Aligning Academic Programs, Third-Party Industry Credentials, and Labor Market Skill Needs: A Guide for Community Colleges* (December 2025): **https://share.ansi.org/wc/Shared%20Documents/Workcred-Reports/Community-College-Pathways/Integrating-Academic-Programs-Third-Party-Industry-Credentials-and-Labor-Market-Skill-Needs-Guide.pdf**

Table of Contents

About the Project

Higher education policy is placing greater emphasis on the types of outcomes students achieve after graduation from an institution of higher education. These outcomes may include obtaining a job with a family-sustaining wage, workforce readiness, or earning a third-party, industry-developed certificate or certification. To help achieve these outcomes, there must be intentional and committed alignment among the academic curriculum, the industry credential(s), and the everchanging skills needs required by industry so that students can successfully transition from their academic program to a career. For this alignment to exist and be maintained, there needs to be policies and processes in place at community colleges, especially when integrating third-party credentials.

The practice of integrating or embedding industry credentials like certifications into certificates or degrees is common at community colleges.[1] Embedding refers to a college's alignment of its degree curriculum with an industry-developed credential, although the approach a college may take varies as it seeks to better serve its learners and leverage its existing resources. A study among 149 U.S. colleges and four-year institutions by Lumina Foundation found that the most commonly cited benefit of embedding certifications into academic pathways was that it enabled students to earn valuable industry and academic credentials at the same time.[2] The study also showed that these pathways helped colleges and universities align their curricula with prevailing industry standards.

Certifications are distinct from other credentials because they are awarded after an individual demonstrates acquisition of a set of skills through a standardized assessment (e.g., oral, written, or performance-based). Additionally, certifications must be renewed after a designated period of time and can be revoked for incompetence or unethical behavior. Individuals must meet qualifications such as training and experience that are required prerequisites to take the certification examination. Certifications are awarded and tracked by certification bodies—typically nonprofit organizations, professional associations, industry/trade organizations, or businesses. According to Credential Engine, nearly 7,000 industry-recognized certifications are offered across numerous industry sectors.[3]

Workcred partnered with Houston City College (HCC) and Texas Southmost College (TSC) to improve the effectiveness of industry certification + certificate/degree (iC+C/D) pathways in Texas by examining opportunities to align education and workforce stakeholders' processes and policies to better support low-income and first-generation students in completing iC+C/D pathways, earning postsecondary credentials of value, and entering the workforce. The case studies that were developed as a result of this work can be found in the following publications:

» **Aligning Electrician Programs with Industry Demands in the Rio Grande Valley**

» **Meeting the Need for HVAC Technicians**

» **Powering the Rio Grande Valley's Automotive Workforce**

» **Strengthening Business Technology Pathways**

About the Guide

This document serves as a guide for community colleges interested in examining opportunities to better align programs that include third-party, industry-developed credentials so that students have more success completing academic pathways, earning postsecondary and industry credentials of value, and entering the workforce. This document highlights opportunities to increase active employer engagement as well as specific steps to ensure program alignment. When programs are aligned, students have confidence that they will gain the knowledge and skills that employer's value. And, employers, who must be integrally involved in ensuring this alignment, have confidence that learners who graduate from the academic programs will have the skills they require to make their businesses thrive.

Maintain Frequent and Consistent Interaction with Employers

Ensuring that community college programs are aligned with industry needs requires frequent and consistent engagement with employers. There are multiple strategies to ensure that employers have opportunities to provide feedback, discuss the curricula and industry credentials, and support faculty and students.

Advisory Committee Participation

Community college career and technical education (CTE) programs typically have advisory committees comprised of employers. According to the Texas Higher Education Coordinating Board (THECB), advisory committees should engage in activities that directly support how academic programs are created and revised.[4] These functions include:

- ☑ Assessing the goals and objectives of program curricula
- ☑ Identifying competencies for the occupations associated with each program
- ☑ Suggesting revisions for the program
- ☑ Determining if the program has access to necessary equipment, technology, and facilities
- ☑ Providing guidance about new equipment that may be needed for a program

For advisory committees to support program alignment and pathway development, meetings must focus on discussions of specific and actionable items, such as:

- ☑ Review and provide input about labor market information gathered from both public and private sources and discuss whether there is agreement or areas of discrepancy
- ☑ Provide information about and discuss current and forecasted industry and skill trends, including which occupations are growing and which are declining

- ☑ Identify the most critical employability and technical skills/competencies that are required for job candidates to succeed in the workforce

- ☑ Identify industry certifications or certificates employers prefer or require for employment

- ☑ Review the program curriculum to provide insights about whether the knowledge, skills, and abilities (KSAs) that are being taught and assessed are aligned with the KSAs that employer's value (and if there are gaps, discuss how those gaps can be filled)

Focus Groups

Not all employers are able to participate in advisory committees, so there must be other opportunities to get their input. One strategy is to hold focus groups using a set of structured questions around alignment, use of industry credentials, credential recognition and signaling, and outcomes (see Figure 1).

Figure 1: Sample Questions for Employer Focus Groups

ALIGNMENT

What KSAs are most in demand in your industry? Are there existing training programs and credentials that include these competencies?

Are the skills your employees need taught in the academic program at the community college? If not, what skills are missing?

What criteria do you use when evaluating a job application?

Are there any particular training programs that you think are particularly effective or valuable for potential workers?

OUTCOMES

Is there any differentiation in salary or time to promotion for employees who have the same job role and have no degree or industry-developed credential, have a degree or industry-developed credential, or have both a degree and an industry-developed credential?

Is there a performance appraisal process? What are differences in performance between individuals with credentials compared to those without credentials?

USE OF INDUSTRY CREDENTIALS

What is the process your company uses to determine what credentials you would like job candidates to possess?

Which industry-specific credentials, if any, do you consider when hiring?

In the interview process, do you ask job candidates about the credentials they have acquired and listed on their resumes?

Are there any major credentials in your industry that you do not encourage your employees to obtain? Why not?

Are there any credentials that you do not currently require but may consider requiring that workers hold or obtain in the future?

CREDENTIAL RECOGNITION AND SIGNALING

Do you require or prefer any training programs or credentials in your job descriptions? If so, what are they?

Hold Industry Partner Summits

Community colleges can also invite industry representatives in specific program areas to review each course in a program based on five areas—curriculum content, lab equipment, software and technology, hands-on training, and certification preparation. Use a rubric to record participant review and comments (see Figure 2 for a sample rubric). This information is then reviewed by the program faculty and their advisory committee, and used to suggest modifications to the program.

Figure 2: Workforce Alignment Rubric

PROGRAM AND COURSE NAME _____

CURRICULUM CONTENT
Is the curriculum meeting current industry standards?

1	2	3	4
Not meeting	Somewhat meeting	Mostly meeting	Fully meeting

LAB EQUIPMENT
Are lab tools and equipment current or outdated?

1	2	3	4
Outdated	Somewhat outdated	Mostly current	Fully Current

SOFTWARE AND TECHNOLOGY
Is the software and technology training aligned with what is used in the workforce?

1	2	3	4
Not aligned	Somewhat aligned	Mostly aligned	Fully Aligned

HANDS-ON TRAINING
Is the training comparable to real-world tasks?

1	2	3	4
Not comparable	Somewhat comparable	Mostly comparable	Fully Comparable

CERTIFICATION PREPARATION
Is the offered certification aligned with industry needs?

1	2	3	4
Not aligned	Somewhat aligned	Mostly aligned	Fully Aligned

TOTAL SCORE

5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

NOTES:

Hold Mock Interviews

Mock interviews further prepare students to succeed by offering practice in a supportive, feedback-rich environment. Employers can simulate interviews as a way to provide constructive feedback, enabling students to refine their body language, tone, and overall presence, ultimately enhancing their ability to make a strong impression during real interviews. Faculty can follow-up with industry representatives who participated in the mock interviews to gather feedback about how students are prepared to enter the workforce and to improve program alignment.

Provide Work-based Learning Opportunities

Employers can provide work-based learning experiences (e.g., internships, apprenticeships, co-ops) for students, so that they can apply the knowledge and skills they are learning in the classroom to the work environment. Faculty can work closely with employers to gain insights about whether the students are well-prepared and able to apply their knowledge and successfully complete tasks that are part of their work-based experiences. This information provides vital feedback about whether the program is preparing students to meet employer needs and possible changes that need to be made.

Donate Equipment or Software

Students need access to the most up-to-date technology and equipment. Employers can help by donating equipment or software that is currently being utilized in work environments so students can learn, gain confidence working with these items, and be better prepared to enter the workforce.

Pathway Alignment Process

The following steps can be used to guide alignment of academic programs and pathways with local and regional labor market skill needs.

Identify and Examine the Current Programs and Awards that Are Offered

The first step in ensuring that existing pathways are aligned with employers' skill needs is to identify what programs and awards are currently being offered. Each discipline will have a different combination of credit and non-credit programs and awards, which may include an associate of applied science degree (AAS) or associate of science (AS) degree, basic certificates, enhanced skills certificates, advanced technical certificates, occupational skill awards, and/or institutional credential leading to licensure or certification (ICLC). It is also important to review the enrollment in each of these programs and awards to better understand the number of students being prepared for specific occupations and the labor market need for employees with those skills.

Pinpoint Program Needs Using Labor Market Information

Labor market information (LMI) provides data that community colleges can use to gain insights about growing and waning occupations, earnings, in-demand skills and occupations, future demand for specific occupations, lists of third-party credentials included in job postings, etc. This information is critical in helping to inform the decisions about whether new programs should be created or existing programs should be revised or possibly deactivated.

Identify Multiple Sources of LMI

LMI can be obtained from both public and private sources. Publicly available LMI may come from the state or state agencies (e.g., **Texas Labor Market Information**, **Texas Workforce Commission**) and the federal government (e.g., **U.S. Census**, **U.S. Bureau of Labor Statistics**). In addition, community colleges may also work with private providers who offer products that integrate real-time LMI and other publicly available information (e.g., **Chmura Economics & Labor Market Analytics, Lightcast**, **Revelio Labs**).

Validate LMI findings with Advisory Committees

All LMI should be validated with local and regional employers who serve on the relevant program advisory committees, and other employers who are active in the program. This ensures that employers have an opportunity to confirm the results of the LMI findings or identify areas where their information differs from the LMI findings.

Research and Review Industry-Validated Competencies

Faculty and advisory committee members should work together to identify the technical and employability skills, competencies, and attributes that are required to successfully enter the occupations for which the programs are focused. This information can be gathered from multiple sources like a LMI analysis, a job task analysis or developing a curriculum (DACUM) process, and publicly available information from industry certification bodies and industry associations.
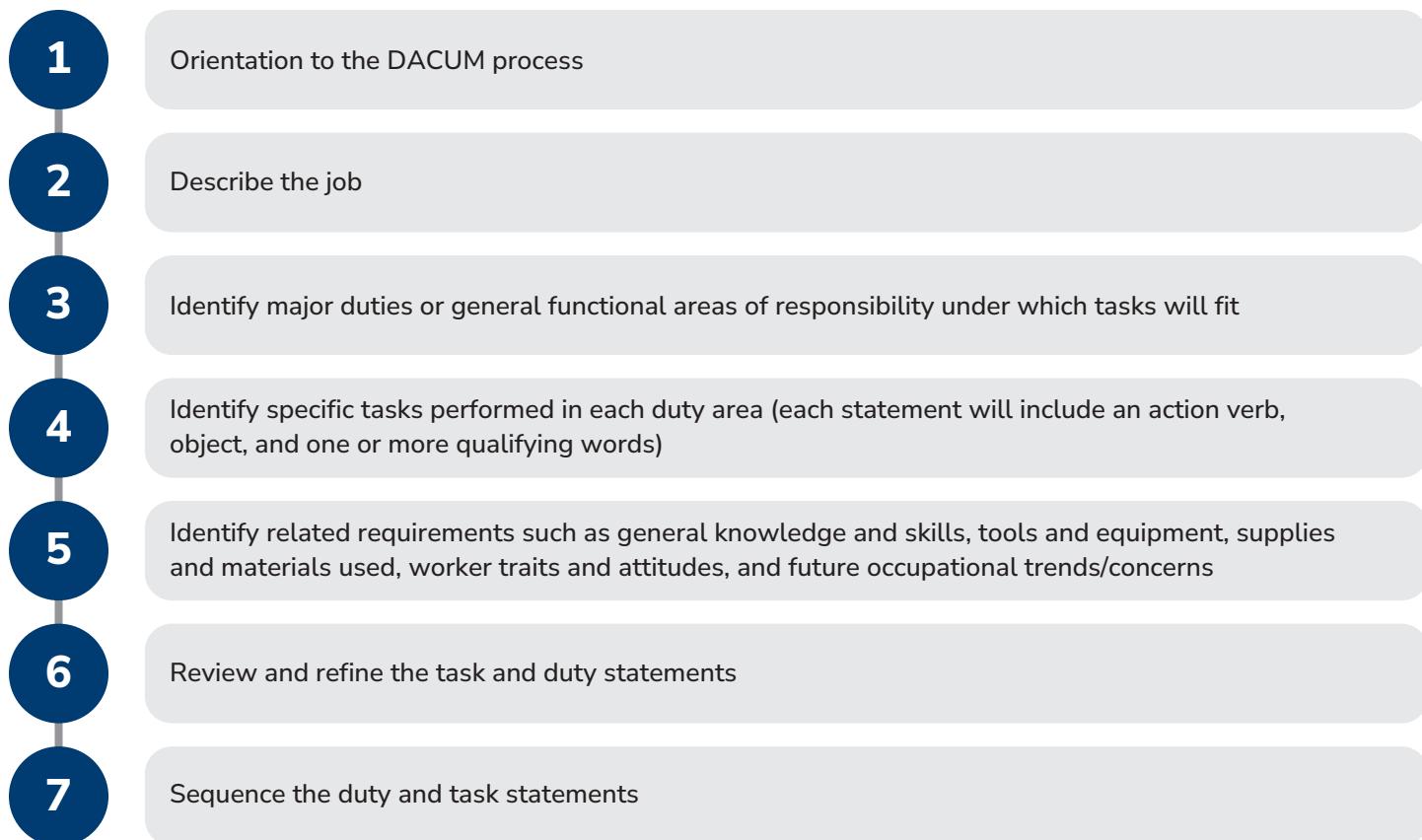
Once the industry-validated competencies are identified, the information needs to be reviewed by employers, including the advisory committee, to ensure that the identified competencies accurately reflect their skill needs. Other reviewers should include faculty and alumni.

DACUM Process

A DACUM is a structured analysis process that can be used to identify the content that should be included in educational and training curriculum and the knowledge gaps. A DACUM workshop can be organized where a facilitator will guide individuals who are working in this field (e.g., industry representatives on advisory committees and other employers) through a seven-step process (see Figure 3).[5] Participants are asked to describe the jobs that graduates of the program should be prepared for, and to rate each of those tasks according to their frequency and importance. The output from this workshop is a written profile that describes the occupational role in terms of specific competencies, skills, and tasks that the competent graduate of the community college program is expected to be able to perform. In this process, a task is defined as a unit of observable work with a

specific beginning and ending point that leads to a product, service, or decision. Tasks often require both knowledge in a specific content domain and practical skills necessary to carry out the task. The DACUM process is different from other curriculum development processes in that subject-matter experts working in the profession analyze their own jobs and the results are produced in a graphic format.

Figure 3: Steps in the DACUM Process

1	Orientation to the DACUM process
2	Describe the job
3	Identify major duties or general functional areas of responsibility under which tasks will fit
4	Identify specific tasks performed in each duty area (each statement will include an action verb, object, and one or more qualifying words)
5	Identify related requirements such as general knowledge and skills, tools and equipment, supplies and materials used, worker traits and attitudes, and future occupational trends/concerns
6	Review and refine the task and duty statements
7	Sequence the duty and task statements

Resources from Non-Academic Credentialing Bodies and Associations

As part of a third-party certification assessment development process, certification bodies create a job task analysis for each certification that they offer. The job task analysis process is facilitated by a psychometrician (an expert in tests and measurements) and involves practitioners in the field who work together to identify the tasks and KSAs essential for a job. Information derived from the job task analysis is used to create the certification exam blueprint and the certification exam content. Many certification bodies make these resources available for free on their website, and community colleges can use them as part of their process to validate industry competencies. For example, certification bodies publish the exam content outline, which includes the domains of knowledge assessed on the certification exams, the percentage of the test items associated with each domain of knowledge, and industry-validated tasks and competencies. Below are some links to examples of exam blueprints that can be used by community colleges.

- » **AHIMA Certified Coding Specialist Exam Content Outline**
- » **ASE Study Guide for Automobile Maintenance and Light Repair (G1) Test**
- » **CompTIA A+ Core I (V15) Exam Objectives Summary**
- » **PMI Certified Associate in Project Management®**

Curriculum Alignment Mapping

Curriculum mapping is used to review existing programs and to develop new programs by aligning the learning outcomes or critical work functions with all of the instructional courses that are part of the program or award. Information about skills, learning objectives, and key workforce activities is used to populate the curriculum map. Then, each key activity or skill is matched to the course(s) where the activity is introduced, reinforced (e.g., skill is explicitly taught or practiced), or assessed. Figure 4 outlines a sample curriculum alignment map template.[6] Faculty may consider working with a curriculum specialist to develop the curriculum alignment map.

Figure 4: Sample Curriculum Alignment Map Template

CRITICAL WORK FUNCTION/LEARNING OUTCOME	KEY ACTIVITIES/ SKILLS	PROGRAM COURSES					
		COURSE 1	COURSE 2	COURSE 3	COURSE 4	COURSE 5	COURSE 6
Critical Work Function / Learning Outcome 1	KEY ACTIVITY 1	I					
	KEY ACTIVITY 2	I	R	R	A		
	KEY ACTIVITY 3		I		R	A	
Critical Work Function / Learning Outcome 2	KEY ACTIVITY 1				I	R/A	
	KEY ACTIVITY 2			I	R		
	KEY ACTIVITY 3				I	R	R

Key: I = Introduced; R = Reinforced; and A = Assessed

Identify Skills Gaps in the Curriculum

The curriculum map is used by faculty and advisory committee members to understand the strengths, gaps, and redundancies in the curriculum. For example, if skills or competencies are reinforced more times than is necessary or introduced in multiple courses, then it is important to consider what curriculum revisions must be made. There might also be instances when a skill or competency is not being taught, and the curriculum map is used to identify if that skill can be added to an existing course and whether it requires some other skills to be removed.

If multiple skills/competencies are identified that are not in the curriculum map, then it might be necessary to consider whether another course should be developed that includes those skills. In Texas, each of the courses that comprise the CTE awards and programs are listed in the Workforce Education Course Manual (WECM), a statewide inventory of workforce education courses offered for semester credit hours and continuing education

units.[7] The inventory includes both statewide core courses and courses that meet local needs in each community college's service area. Faculty can use the WECM to identify the approved technical courses that include the necessary industry-validated competencies.

Identify Course Sequencing

Next, the faculty and advisory committee members should work together to use the curriculum map to identify and/or confirm the proper sequence of courses. The sequence is important so that skills build upon each other as students move from course to course through the pathway.

Identify Relevant Third-Party Credentials

It is estimated that there are nearly 400,000 certificates of completion, apprenticeship certificates of completion, microcredentials, certifications, and occupational licenses offered by organizations outside of higher education institutions.[8] The challenge for community colleges is to determine which of these credentials have value and which relate to the necessary skill level needed to ensure they are appropriate to align with an academic program or award. Figure 5 outlines a set of guiding questions that can be used to help gather information about the quality of industry-developed credentials using easy-to-find, publicly available information.

Figure 5: Guiding Questions to Assess the Quality of Industry-Developed Certifications and Certificates

CERTIFICATIONS	CERTIFICATES
Was industry involved in creating the credential, and to what extent?	
Are there any formal endorsements by industry?	
Is it accredited by a third party, such as **ANSI National Accreditation Board** (ANAB) or **National Commission for Certifying Agencies** (NCCA)?	
Is the credential supported by a national or international standard (e.g., *ISO/IEC 17024:2012, Conformity assessment—General requirements for bodies operating certification of persons*, or **ASTM E2659-18**, *Standard Practice for Certificate Programs*)?	
To assess the assessment of competencies: Does it have a third-party assessment?	**To assess the quality of instruction:** How is the content taught or made available?
To assess the maintenance of competencies: Does it have processes for expiration, recertification, and revocation due to unethical or incompetent conduct?	**To assess the quality of instructors:** Is the content taught by recognized subject matter experts?
To assess the validity of skills: Is this certification connected to state licensure? Which states recognize the certification (e.g., all, a majority)?	**To assess the appropriateness of the instruction:** Do the teaching strategies support achieving the learning outcomes?

Quality Assurance and Recognition Resources

Community colleges can also gather information about third-party credential providers and credentials offered outside of higher education institutions from organizations that have developed quality assurance processes. For example, the Higher Learning Commission has a short-term credential provider endorsement process to identify education and training providers whose offerings prepare learners for the skills needed for the workforce.[9] The New England Commission of Higher Education has also introduced a non-credit quality assurance framework for higher education institutions and other organizations that offer non-credit programs. The focus of this framework is to recognize non-credit offerings based on attributes of quality and the organizational commitment to that programming.[10] And, the virtual recognition program designed by ABET focuses on skills-based, non-degree learning programs that are offered by higher education institutions and other providers.[11] Each of these quality assurance programs might be able to provide additional information for community colleges to consider when selecting industry-developed certificates and certifications for inclusion into pathways.

Create a Crosswalk to Determine Competencies and Stackability

Once the faculty and advisory committee have selected third-party credentials to align with the programs or awards, there should be a crosswalk conducted that analyzes the competencies assessed in the credentials verses the curriculum map to determine if all of the competencies are included. If any of the competencies are not included in the curriculum, then there must be a discussion about whether the competency can be added to an existing course, if any new courses should be added, or if the credential is not appropriate for the program.

There must also be a decision made about how different types of industry credentials will be integrated into the program curriculum (see Figure 6). For industry certifications, it must be determined if the students will take the certification exam as requirement of the academic program or if students will be prepared to meet the eligibility requirements of the certification exam and then take the exam separate from the program.

Figure 6: Options to Align Industry Certifications and Certificates with Community College Programs

INDUSTRY CERTIFICATIONS	INDUSTRY CERTIFICATES
☑ Align competencies for an industry certification with the curriculum, so the students are prepared to meet all of the eligibility requirements to take the certification exam	☑ Incorporate the learning outcomes of the certificate as part of the program or award
☑ Embed the certification competencies into the curriculum and require that students take the certification exam as part of the program or award	☑ Incorporate the certificate as a co-curricular experience

Faculty and the advisory committee should also conduct a crosswalk to determine which courses are required for each program or award. This review should address where industry credentials are/can be best associated with specific courses and/or programs. Figure 7 is an example of how HCC crosswalked the courses, academic credentials, and awards in the heating, air conditioning, and refrigeration program to form a pathway. During this process, if a program or credential no longer aligns within the pathway, then there should be a discussion about whether it should be maintained or deactivated.

Figure 7: Example Crosswalk of HCC's Heating, Air Conditioning, and Refrigeration Pathway[12]

COURSES	HVAC AAS	HVAC ADVANCED LEVEL 1 CERTIFICATE	HVAC BASIC LEVEL 1 CERTIFICATE	OCCUPATIONAL SKILLS AWARD—AIR CONDITIONING TECHNICIAN
EDUC 1300: Learning Framework	●			
ELPT 1315: Electrical Calculations I	●	●	●	
HART 1301: Basic Electricity for HVAC	●	●	●	
HART 1356: EPA Recovery Certification Preparation	●	●	●	
HART 1303: Air Conditioning Control Principles	●	●	●	
HART 1307: Refrigeration Principles	●	●	●	
HART 1341: Residential Air Conditioning	●	●	●	
HART 1345: Gas and Electric Heating	●	●	●	
HART 2334: Advanced Air Conditioning Controls	●	●		
HART 2341: Commercial Air Conditioning	●	●		
HART 2345: Residential Air Conditioning System Design	●	●		
HART 2302: Commercial Air Conditioning System Design	●	●		
HART 2336: Air Conditioning Trouble Shooting	●	●		
HART 2342: Commercial Refrigeration	●	●		
HART 2349: Heat Pumps	●	●		
HART 2374: Building Control Systems and Automation	●			
General Education Elective	●			
Social/Behavioral Sciences Elective	●			
Humanities/Fine Arts Elective	●			
Math/Natural Science Elective	●			
HART 1038: Air Conditioning Technician I (English or Spanish)				●
HART 1005: Air Conditioning Technician II (English or Spanish)				●
Total Credits	60	42	21	0

▢ EPA Section 608 Universal Technician Certification is embedded with this course

▢ OSHA 10-hour Construction Certification is embedded with this course

Maintain Credential Information and Provide Transparency

Community colleges should develop a credential database that captures information about course alignment, location, labor market information, and current status (see Figure 8). Designated faculty or staff from each CTE program should be responsible for updating the database yearly and to ensure all information remains accurate.

Figure 8: Example of Types of Data to Include in a Credential Database

Award Name	Award Level	CIP Code
Standard Occupational Classification (SOC) Code	Primary Wage	Work-based Learning
Dual Credit	House Bill 8 Value (Texas only)	Contact Hours
Credit Hours	Performance Tier/Certification/ Licensure	Relevant Courses
Time to Completion		

Additionally, community colleges can collaborate with Credential Engine to enhance credential transparency and pathway data by publishing information about all of their programs and awards in **Credential Finder**. In Texas, the **Texas Credential Library** is a partnership among Credential Engine, THECB, the Texas Education Agency, and the Texas Workforce Commission to provide information and transparency to all Texans about all credentials that are issued by postsecondary institutions in the state.[13]

Other Considerations Related to the Use of Industry Certifications

Integrate standardized assessment preparation strategies into the pathway

To earn a certification, students must pass a standardized assessment. For many students, this may be one of their first experiences with a third-party, standardized assessment. Others may have not taken a standardized assessment for a long time, or may not have had access to preparation materials or courses. Therefore, it would be beneficial to incorporate standardized assessment preparation strategies such as practice tests, expectations about the test taking environment, and strategies to address test anxiety.

Become an on-site testing center for certification exams

To help reduce barriers (e.g., transportation, childcare, hours of operation) for learners to take a certification exam, community colleges should consider working with a vendor to have an on-campus testing center that meets the standards to take third-party certification exams. This ensures that all students have access to take the certification exam. An on-campus testing center also provides learners with a familiar, easy-accessible, and easier controlled location for testing that can lead to better student outcomes on the certification exam.

Schedule the certification exam during class time

Recognizing that learners have busy lives and it is sometimes difficult to find a time outside of set class hours for additional commitments, one strategy to consider is to use a class period to administer the certification exam at an on-site testing center (if one exists). Offering testing during a time when students have already planned to be in class also can increase the number of learners who take the exam and complete the pathway.

Support faculty to earn or maintain certifications

Many community colleges provide financial support for faculty professional development. Consider having faculty earn or renew certification(s) as part of the pathway alignment process. By earning the certification, faculty can gain a greater appreciation for the exam preparation process, the exam questions format, the test environment, and thus could better assist students who are preparing to take the certification exam.

Determine how to cover the cost of the certification exam

Cost can be a barrier for students to take a certification exam, which may cost several hundred dollars. Faculty and advisory committee members must carefully consider how students will pay for the certification exam. Some options include having the college purchase exam vouchers, include the cost of the exam in tuition and fees so that students can use their financial aid, add an additional fee to a course, or have students pay directly for the cost of the exam.

Final Review and Implementation

After the alignment process is completed, there should be a final review with faculty, the advisory committee, and other employers that are engaged with the program. This provides another opportunity to provide feedback before the pathway is submitted for final approval through the institution's approval process.

Aligning programs and pathways is not a one-time event, however. The alignment process should be repeated at a minimum of every two years to ensure that the pathways continue to be aligned with local and regional labor market demand. And if there have been substantial changes in skill requirements, new legislative mandates, or changes in which third-party credentials employers value, then the alignment process may need to occur earlier than the proposed two-year schedule.

Outreach and Feedback

Another critical part of this process is to make students aware of the pathways. One approach is to develop marketing materials that provide visual depictions of the pathways with all of the entry and exit points. Materials can also be developed that show each credential in the pathway with the relevant job titles, the time it takes to earn the award, starting salary, median salary, annual job openings for relevant positions in the region, the third-party credentials associated with each academic award or degree, and partnerships with employers. This is also an opportunity to have employers provide testimonials about the pathway or their experience with students who have been hired after completing the pathway.

In addition to developing marketing materials to promote the pathway, there needs to be a strategy to gather real-time feedback from students, alumni, and employers. Surveys or focus groups with students and alumni can provide information about the relevance and effectiveness of the courses taken, the third-party credentials included, and their successes and challenges through the program or pathway (see Figure 9).

Figure 9: Sample Questions to Gather Information from Students[14]

QUESTIONS ABOUT THE COURSE

	Strongly Agree	Agree	Disagree	Strongly Disagree
1. I clearly understood the requirements of the course.	○	○	○	○
2. The course and materials (such as the syllabus, books, readings, assignments, or inclusive access) were organized so that I could easily find what I needed.	○	○	○	○
3. The course materials (such as books, readings, assignments, or inclusive access) were effective for helping me learn.	○	○	○	○
4. The course content (such as lectures, assignments, or discussions) was appropriate for learning.	○	○	○	○
5. The opportunities for interaction with other students in this course met my learning needs.	○	○	○	○
6. This course helped me gain confidence and independence as a learner.	○	○	○	○

QUESTIONS ABOUT THE INSTRUCTOR

	Strongly Agree	Agree	Disagree	Strongly Disagree
1. The ways the instructor shared and presented the material were effective in helping me learn.	○	○	○	○
2. My instructor established a positive and supportive learning environment.	○	○	○	○
3. I was able to communicate with my instructor on matters pertaining to the course.	○	○	○	○
4. The instructor provided useful and timely feedback on assignments.	○	○	○	○

QUESTIONS ABOUT STUDENTS' SENSE OF BELONGING

	Strongly Agree	Agree	Disagree	Strongly Disagree
1. I felt accepted in this class.	○	○	○	○
2. I felt respected in this class.	○	○	○	○
3. I felt supported in this class.	○	○	○	○

QUESTIONS ABOUT THE INSTRUCTIONAL METHOD

	Strongly Agree	Agree	Disagree	Strongly Disagree
1. The expectations of [insert in-person, virtual, or hybrid] attendance and participation for the course were clear.	○	○	○	○
2. I was able to learn the course material/content in the [insert in-person, virtual, or hybrid] instructional mode.	○	○	○	○
3. I am glad I chose to take this course in the [insert in-person, virtual, or hybrid] instructional mode.	○	○	○	○
4. *[For hybrid courses only]* There was a good balance of in-person sessions and independent activities.	○	○	○	○

QUESTIONS ABOUT INDUSTRY CERTIFICATION AND LICENSURE EXAMS

	Strongly Agree	Agree	Disagree	Strongly Disagree
1. I received the necessary preparation to have the confidence to take the industry certification or licensure exam.	○	○	○	○
2. As part of my academic program, I received instruction in standardized test taking strategies before taking the certification or licensure exam.	○	○	○	○
3. I was able to easily get to the location to take the certification or licensure exam.	○	○	○	○
4. I had access to practice exams before taking the certification	○	○	○	○

OPEN-ENDED QUESTIONS

Please comment on the structure of this course (the placement and pacing of assignments, exams, meetings, class discussions, etc.).

In this course, what was effective in helping you learn?

What motivated you to choose *[insert field]* as a field of study?

What have you enjoyed about the *[insert name of program]*?

What kind of further education, training, or industry credentials do you need to meet your goals?

Employers can also provide feedback about skill requirements, equipment and technology changes, performance of students who had work-based experiences at their company, or strengths and weaknesses of students who graduated from the program and were hired as permanent employees. The feedback from students and employers can be used to make changes to the pathway both during the alignment process and between scheduled alignment reviews.

Conclusion

For students to successfully transition from their academic program to the workforce, there needs to be alignment between the skills taught, the industry credentials included, and the labor market demand. This is not an automatic process; instead, faculty and employers must intentionally work together using these defined steps to ensure alignment. Engaging in an intentional and structured alignment process helps to ensure that these pathways are preparing students for careers and providing employers with a talent pipeline for their businesses to grow.

Endnotes

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