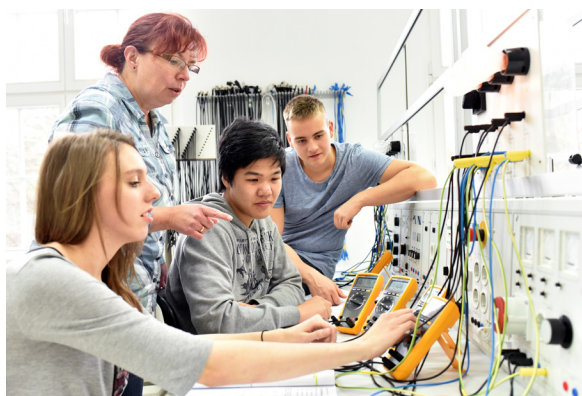


Technical Education Teacher Shortage: Solutions for Pennsylvania

Overview

High school Career and Technical Education programs are a critical pathway for states to prepare for and meet current and future workforce needs. Pennsylvania's career and technical educator licensure requirements for the Instructor II certificate are out of step with emerging best practices.

The state's requirements contribute significantly to the state's Career and Technical Education (CTE) educator recruitment and retention challenges faced by regional and school-based technical training programs. In 2023–24, 700 instructor positions in CTE were vacant, with significant reliance on emergency certification due to unmet demand; programs are having to manage a teacher attrition rate twice as high as for teacher corps as a whole.¹ As a result, Pennsylvania students suffer from limited access to highly sought-after high school options.



An in-depth review of ten key states point to reasonable reforms of the CTE instructor credentialing process that will increase access to high school CTE programs while sustaining teacher quality and program standards. The ten states examined include Pennsylvania, states that have a much larger share of students in CTE, states that border the Commonwealth, and states known for implementing effective or innovative CTE policies.

The result of this research points to three key reforms that can boost program quality, student access and increase the retention of qualified industry experts to teach high school students:

- + Reframe Pennsylvania's instructor certification requirements to rely exclusively on occupational training requirements for licensure in field of instruction. For instance, Colorado sets its CTE instructor credentials consistent with the requirements of licensure for the occupation that the CTE teacher will be teaching, in addition to designated years of work experience in the field. Pennsylvania could more readily recruit and retrain CTE faculty by replicating the industry-focused approach that governs all CTE credentialing in Colorado.

- + Establish a new pathway to CTE teacher Instructor II licensure that recognizes industry experience and training as the basis of Instructor II certification. Eight of the ten states reviewed offer alternative, non-academic pathways for permanent licensure that do not mandate completion of a traditional educator preparation program. Pennsylvania could broaden access by implementing a comparable alternative route.
- + Create a formal process for a district or Intermediate Unit designed to request approval to provide alternative means to demonstrate CTE Instructor II proficiency. For instance, Delaware requires a minimum of 51 credits for permanent licensure of CTE instructors who have associate's degrees, **and** it permits districts to demonstrate to the state other means by which an CTE teacher can be credentialed based on work experience and industry certification. Texas also permits its Department of Education to review and approve district-designed credentialing options to meet CTE shortages via their Districts of Innovation option. Pennsylvania could establish a similar process that offers flexibility for local school administrators to collaborate with instructors to demonstrate their expertise and reduce unnecessary barriers to CTE teacher recruitment and retention.

Introduction

Pennsylvania’s career and technical education system offered 41,142 high school students in School Year (SY) 2024 the chance to gain real-world skills, readying approximately 6.8% of public-school students in grade nine through 12 for success in the workforce and post-secondary education. The Commonwealth has a smaller share of students in CTE programs than nearly every neighboring state and many powerhouse economic competitor states as well.

Promising examples of new CTE programs in emerging, high-demand fields, including law enforcement and EMT shortages as well as in early childhood education, are taking hold across the state. Despite this growth, when looking at programing across the state, the opportunity to enter CTE programs is constrained by underfunding of the system, facility constraints, limited capacity to develop and update or create new programs, and a severe shortage of faculty. The compounding effect of these factors causes the share of Pennsylvania students enrolled in CTE programs to be stagnant and smaller than our neighboring and competitor states.²

While CTE programs across the country face similar funding and facility challenges, other states are making it easier for individuals with technical expertise to become, and remain, CTE teachers.

State	% of HS CTE Concentrators
Delaware	90%
Texas	71%
Tennessee	29%
Illinois	21%
Ohio	16%
Maryland	14%
Colorado	11%
New Jersey	10.5%
Pennsylvania	6.8%

Since a 50-state analysis was conducted in 2013 by the American Institutes for Research analyzing the CTE teacher licensee policies, at least six states have updated their policies and reduced the educational requirements to become a CTE teacher or maintain a license.³

There is a national shortage of professionals, including occupationally skilled workers, experienced tradespeople, and other professionals, willing to go through the existing process to become a CTE teacher. In fact, Pennsylvania policymakers have explored ways to solve the teacher shortage in the last five years and passed new regulations and statutes aimed at stemming the teacher shortage writ large. However, those policy reform efforts overlooked the potential of creating alternative pathways for CTE Instructor II certification. Ideally the state's Educator Workforce Strategy should be updated, and legislation enacted to add an expedited, less expensive, and more industry and school aligned alternative certification option to boost CTE program access, increase program quality, and alleviate the CTE teacher shortage.⁴

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Pennsylvania faces a
certified teacher shortage of
nearly 700 CTE teachers.

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CTE Instructor Shortage

The shortage of workers will worsen across a huge swath of professions throughout the country as the baby boomer generation continues to retire. This is especially true for CTE teachers. Already, Pennsylvania faces a severe teacher shortage of about 10,000 certified teachers, including a shortage of nearly 700 CTE teachers, according to the state.⁵ CTE programs across the state experienced an attrition rate of 11.2% in SY 2023, significantly higher than the 6.9% attrition rate in traditional district schools.⁶

The Pennsylvania Department of Education's ground-breaking report on the workforce skills gap estimated that the Commonwealth currently faces a shortage of nearly 12,000 undergraduates graduating with an education degree in March 2024.⁷ The situation is especially pronounced for graduates in the very areas where more CTE teachers are needed.

National data indicates that at least 70% of states report the greatest CTE instructor shortages in the fields of manufacturing, IT, health sciences and STEM.⁸



Meanwhile, nearly 13% of the current CTE teacher corps is 60 or older, nearly twice the share of all older teachers based on an analysis conducted by the Association for Career and Technical Education of U.S. Department of Education data.⁹ Yet, unlike traditional teaching positions, CTE faculty are, more often than not, hired into teaching from private sector positions.

The Brookings Institute found in Tennessee that “almost two-thirds of CTE instructors come to CTE after working in the private sector, using alternative certification programs to enter a teaching career.”¹⁰ In the last three years, Children First interviewed more than 13 directors of the regional career and technical education centers. These administrators report that their faculty have a similar profile.

The opportunity to hire and retain private sector tradespersons and other professionals to teach in CTE programs can help reduce the CTE teacher shortage and put Pennsylvania on par with neighboring states that implement these policies successfully. Pennsylvania’s current approach to teacher certification requirements discourages these highly prized potential teachers from leaving their private sector jobs to teach high school students.

Higher Pay and Burdensome Additional Training in Technical Occupations Lure CTE Teachers Away

When technically skilled professionals leave their private sector jobs to teach in CTE programs, it is especially hard to retain them. CTE teachers with occupational licenses in high-growth areas are much more likely to leave the teaching profession, earning nearly 20% more in private industry, according to the Brookings Institute.¹¹ This trend of early exit from teaching for higher-paying, private sector jobs will continue to spike as the labor pool of those technically skilled private sector workers also shrinks due to the tsunami of boomer retirements.

The pay differential and the increasing competition for technically skilled professionals may also explain why CTE administrators report having difficulty filling positions in CTE subjects 57% of the time, compared to only 39% for openings in academic subjects, according to the National Center for Innovation in Career and Technical Education. This data is alarming as it was collected well before the educator labor pool tightened to what are easily considered alarming levels as of 2025.¹²

The retention of CTE teachers is a common challenge not just in a few counties, but prevalent throughout Pennsylvania. In the Commonwealth, CTE teachers who start teaching without an education degree must earn 60 academic credits by the end of their seventh year – or leave their teaching position. This requirement is more onerous than nearly any other state’s requirement for CTE instructors.



This requirement likely accounts for the fact that emergency permits for CTE instructors rose by 59% over the past decade, reflecting reliance on an ill-defined pathway to fill vacancies. For CTE teachers, emergency certification is the “alternative” certification pathways now seen as the primary pathway for most new CTE teachers.¹³

One of the reasons this policy is particularly problematic is the cost. Program administrators identify the capacity to pay for their Intern and Instructor I teachers to complete all courses required to meet the Instructor II requirements as their most widely used strategy for retaining CTE teachers.¹⁴ Many, but not all, of Pennsylvania school districts or regional career and technical education centers pay the cost of completing the required coursework.

For some lower-wealth districts/regional tech centers, paying the full cost of those courses is not feasible. That means that, in addition to earning less for taking a teaching job, CTE teachers also pay out of pocket for some or all of the cost of keeping their teaching position. Regardless of who pays the cost of the credits, CTE teachers are not paid for the 180 hours of college instruction and homework time needed to earn the 60 education credits, which would likely exceed \$10,000 if it were remunerated.

In each of the comparison states, more students are enrolled in high school CTE programs and graduating with essential credentials and post-secondary credits. And, in these states, neither teachers nor taxpayers are paying for expensive academic courses to fulfill state certification requirements because these states offer options to prove proficiency by successfully teaching and maintaining the industry required credentials. Put simply, Pennsylvania taxpayers are paying millions of dollars for academic course work that taxpayers in other states do not have to cover.

Pennsylvania’s CTE Teacher Certification Requirements are More Onerous than Other States and Out of Step with States with Large CTE Enrollment

Both larger and smaller states are producing dramatically more high school CTE concentrators than the Commonwealth. In a large state like Texas, the share of students in high school CTE programs is ten times the share in Pennsylvania. In Delaware, Pennsylvania’s neighbor, and smaller state, CTE penetration is fifteen times higher than in Pennsylvania. States like Colorado and Tennessee are also dramatically outpacing Pennsylvania by two to three to one, where only 6.8% of students were enrolled in these programs in SY 2024.

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School administrators report having difficulty filling positions in CTE subjects 57% of the time, compared to only 39% for openings in academic subjects.

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An in-depth comparison of these states finds that, except for Pennsylvania, each state has both academic credit requirements for CTE teachers and an alternative pathway for industry professionals to become permanently certified that makes it easier for skilled professionals to become a permanent CTE instructor.

These pathways take on the form of alternative certification options available statewide and in some cases offer local flexibility, with state approval, for an alternative means of demonstrating instructor proficiency.

Pennsylvania's requirements for CTE teacher certification are less flexible than these states, and nearly every other state, which likely explains the state's CTE teacher shortage. This study deeply examines the teacher certification requirements in the nine states carefully selected because they either have a much larger share of students enrolled as CTE concentrators or they are large states that border Pennsylvania.

CTE Teacher Certification Requirement Background

The ten states reviewed, including Pennsylvania, rely on three basic components to license CTE teachers – Educational Requirements, Occupational Licensure, and Work Experience.

- + Educational Requirements – Bachelor's degree in education or related field or alternative certification pathway. Some states also require a passing score on the state's teacher preparation exam.
- + Occupational Licensure – Evidence of a valid occupational license or a passing grade on industry specific exam.
- + Work Experience – Evidence of a minimum of years working in the occupation/profession.

In every state examined, except Pennsylvania, occupational licensure and work experience can be substituted for a significant portion, or all, of the academic requirements for certification.

States vary in their certification periods. Some states require a new teacher to meet a specific standard with no additional requirements thereafter. Other states have a two-step process with minimal standard to start teaching followed by a three-to-five-year benchmark with more robust requirements. ***Among these states, Pennsylvania alone has a three-tiered system with increasing academic requirements making it the state with the most onerous standards for those wanting to shift from private industry to make a long-term career as a CTE teacher.***

There are different requirements at distinct phases of a teacher's career. The review of state policies analyzed each state's requirements to enter the field, and what was required to maintain teaching and identified three phases:

- + Entry level requirements – New teachers, often those with less than three to five years, can start to teach if they can demonstrate proficiency on an industry test, a state-developed industry specific test, or evidence of professional licensure.

- + Early career benchmark requirements – Most states require credit accumulation in a teacher preparation program or further industry certification by the end of third to fifth year of instruction. Pennsylvania requires completion of 18 credit hours in a teacher preparation program or one of the three state-designated CTE teacher certification programs by the end of the third year of teaching.
- + Additional tenure benchmarks – Pennsylvania is the only state that requires completion of 60 hours of a teacher preparation program by the end of the sixth year to continue as a CTE instructor.

Overview of the Amount of Coursework needed for Industry Professional to Earn a CTE Teacher Licensure	
State	Educational Requirement
Colorado	There is no stated minimum required amount of coursework. All licensure requirements are specific to content area.
Maryland	Through the Occupational Experience credentials, individuals with a high school diploma need 12 credit- 4 courses -to receive full Professional Teaching license.
Tennessee	For someone with only a high school diploma, individuals must complete a minimum of 18 credit hours of coursework.
Delaware	For someone who completed two years of college or technical training, individuals must complete 51 credits or where a school district finds an individual qualified, they can ask the state department of education to approve the teacher for licensure.
Pennsylvania	For someone who only has a high school diploma, individuals must complete 60 credits. The first 18 credits must be earned by the end of the third year of teaching to be licensed as an Instructor I and 42 credits must be earned by the end of the seventh year to be licensed as an Instructor II.
Illinois	An individual must complete a minimum of 60 semester hours from accredited institution or trade and technical institution at the 100-level or higher to earn an Educator License with Stipulations to teach CTE.
Ohio	For someone who only has a high school diploma, individuals must complete a career-technical workforce development educator prep program for a minimum of 24 semester hours of coursework. (1 semester hour = 3 credits)
New Jersey	Through the Alternate Route Program an individual with 8,000 work hours in an area they seek to teach must complete 400 hours of formal instruction.
California	Individuals must complete a Commission-approved advanced program of personalized preparation, which are designed in collaboration with local education agencies. There are extensive program standards (found here) that individuals must meet at both the initial and advanced level, but there is not a clear minimum credit or hours required to meet these standards.
Texas	Individuals in Health Sciences, Trade, and Industrial Education CTE teachers can rely on industry certifications, all other individuals must complete a four-year teacher preparation program or a yearlong alternative teacher certification program or in Innovation Districts, with state approval, individuals can be certified as qualified by their district.

Additional details on some of these states can be found in the appendix.

Alternative Pathways Can Boost Instructor Quality

Despite national debate about the role teacher preparation programs play in preparing new teachers for the rigors of classroom instruction, alternative pathways have been a staple in preparing CTE teachers for almost a century. The National Center for Career and Technical education studied the vast access to alternative certification options for CTE faculty and found, “because industry experience is a valuable qualification for CTE teachers, alternative routes have existed for nearly 100 years in the CTE field, particularly in the areas of trade and industrial education and health occupations. The percentage of alternatively certified CTE teachers is about 28%, but the numbers may be much higher. AZ In a survey of 12,000 CTE teachers in 30 states, 75% of teachers reported entering through an alternative route.”¹⁴

Research also indicates that alternative teacher certification options have comparable results to traditional teacher preparation programs. A study conducted by Mathematica Policy Research found no difference between the mathematics and reading achievement of elementary school students whose teachers entered the profession through an alternative route and the achievement of students who had traditionally certified teachers.¹⁵

Pennsylvania requires new CTE teachers to complete 18 hours of academic course work to receive an Instructor I credential. These academic hours can be ideally suited to help new CTE teachers build pedagogy and classroom management skills. Further, all teachers are required to participate in ongoing professional development under the Pennsylvania Act 48 requirements.¹⁶

The Pennsylvania requirement that an experienced CTE teacher must complete an additional 42 hours of academic coursework by the end of their sixth year of teaching to remain licensed should be updated to provide an alternative pathway. That pathway must ensure CTE faculty remain proficient in their industry so districts and parents can be assured that teachers are well-versed in the most up-to-date industry training.

Instead, the state can codify a credible alternative certification pathway that ensures that experienced CTE faculty who are eager to teach our students for the long term (more than eight years) have an efficient and objective means to demonstrate proficiency in their industry and a good teaching track record. Doing so will contribute to solving the CTE teacher shortage and open up capacity for more students to enroll in CTE programs.

Pennsylvania Can Increase Access to CTE by Creating Options to Address the Burgeoning CTE Teacher Shortage

In 2024, the legislature began to remedy the CTE teacher shortage by increasing the options for new recruits and novice teachers to meet the requirements of licensure for Intern and Instructor I certificates.¹⁷ While more can be done to increase the supply of new teachers and boost the retention of novice teachers, policy reforms to address the Instructor II retention challenges are urgently needed.

Alternate Certification Pathways Can Reduce Early Exit and Increase Supply

To increase supply and retention of CTE teachers, Pennsylvania must adopt at least one of the following policy options:

1. Reframe Pennsylvania's CTE instructor certification requirements to rely exclusively on occupational training requirements for licensure in field of instruction. For instance, Colorado sets its CTE instructor credentials consistent with the requirements of licensure for the occupation that the CTE teacher will be teaching, in addition to designated years of work-experience in the field. Pennsylvania could more readily recruit and retrain CTE faculty by replicating the industry-focused approach that governs all CTE credentialing in Colorado.
2. Establish a new pathway for CTE teacher Instructor II licensure that recognizes industry experience and training as the basis of Instructor II certification. Eight of the ten states reviewed offer alternative, non-academic pathways for permanent licensure that do not mandate completion of a traditional educator preparation program. Pennsylvania could broaden access by implementing a comparable alternative route. Specifically, such an approach would be structured as follows:

After a CTE teacher meets the requirements for securing Instructor I credentials, the Alternative Certification Model for CTE Instructor II credentials would include:

- + Instructor passes an appropriate industry certification(s) between the fifth and the seventh year of teaching, and
 - + Instructor secures a satisfactory evaluation conducted by the LEA that assesses instructor efficacy based on a template prepared by the Department at the end of the seventh year, and
 - + Instructor completes all Act 48 requirements.
3. Create a formal process for a district or Intermediate Unit to request approval to provide alternative means to demonstrate CTE Instructor II proficiency. For instance, Delaware requires a minimum of 51 credits for permanent licensure of CTE instructors who have associate's degrees, and it permits school districts to demonstrate to the state other means by which a CTE teacher can be credentialed based on work experience and industry certification. Texas also permits its Department of Education to review and approve district designed credentialing options to meet CTE shortages via their Districts of Innovation option. Pennsylvania could establish a similar process that offers flexibility for local school administrators to collaborate with instructors to demonstrate their expertise and reduce unnecessary barriers to CTE teacher recruitment and retention.

APPENDIX

Examples of Smooth Pathways for Private Sector Professionals to become CTE Teachers

Colorado and New Jersey CTE teacher certification requirements value private sector work experience on par with the value placed on academic degrees. The other states examined offer a clear alternative pathway reliant on industry experience and licensure in addition to the traditional teacher preparation route. What follows are some examples of how these states are aligning their CTE teacher certification requirements with industry expectations and the research on what CTE teachers need to learn to succeed. There is a table that has an overview of the amount of coursework needed for industry professionals to earn permanent CTE teacher licensure at the end of this report.

Colorado

Colorado has an array of CTE teacher certification options that mirror the specific occupational licensure requirements or basic industry expectations for hiring professionals.¹⁸ In some cases, new CTE teachers must meet academic requirements, but they are only required to do so based on the extent that they are also required to have these courses to qualify for a position in the field of study.

Delaware

Delaware outlines clear pathways for CTE teachers through a CTE certification process that is the same as their traditional classroom teacher requirements. For industry practitioners to become teachers the state offers an alternative pathway called the Skilled and Technical Sciences Certificate – STS. The process recognizes the benefits of each option and creates a pathway to continue to have a high bar for educators while providing several different entry points.

For the Traditional Pathway, an individual goes through a traditional educator prep program, including earning a bachelor's degree, and then has specific requirements for each of the industries, including, when appropriate, the recognized license or credential in that field.

For an alternative pathway, Skilled and Technical Science Certificate, individuals have different educational requirements depending on what level of education someone starts with, allowing for multiple entry points.¹⁹ (See chart on page 20.) Delaware also offers districts flexibility to seek the state department of education's approval to accept a district's review that a teacher's industry and teaching experience should take the place of the state's credential options.

New Jersey

New Jersey takes a similar approach to Colorado. For individuals without a bachelor's degree, occupational licensure, and work experience count towards educational requirements. Typically, new teachers must show evidence of a minimum of four years (8,000 hours) of full-time work in the field in which they plan to teach and to ensure professional expertise, new teachers must demonstrate industry knowledge.

To meet the employment verification, New Jersey requires:

- + Eligible employment verified by each employer where the individual worked for the 8,000 hours, and
- + Employers completing a Statement of Practical Experience form are asked to comment on the candidate's work performance and safety practices

New Jersey also permits custom-tailored substitutes for experience or training for the 8,000-hour work requirement for 54 CTE programs of study. The substitutes include:

- + Industry credentials may be considered equivalent to the employment experience requirement. Candidates may submit industry credentials which are subject to review by the New Jersey Department of Education.
- + Up to three years of substantive teaching experience in the occupation may be used as a substitute for three of the required four years of occupational experience.
- + Information on approved teaching experience in a higher education institution, a formal training position in a health care facility, and an apprenticeship program or in a military setting.

Ohio

Ohio passed legislation to create an alternative pathway to CTE teacher certification in March 2025. These changes aim to expand access to CTE and streamline the licensing process for educators in Ohio. The State Board of Education and the Department of Education and Workforce worked collaboratively to update rules, processes, and resources. The measure provides alternative pathways for licensing, enabling applicants to qualify through district-developed programs that meet state standards. It also establishes a two-year mentorship program for new career-tech teachers, designed by districts, which includes professional development and assigned mentors to support new educators.²⁰

Tennessee

Tennessee has an occupational permit process that allows individuals without a teaching background to get a permit to teach for a year while they fulfill other requirements. For that initial permit, the person either needs an active industry certification in the area they want to teach, or at least three years of relevant work experience within the last five years, or five years within the last 10 years, in the area of endorsement as defined by the department.

For that individual to stay teaching, the state outlines three different pathways to licensure depending on the starting education level with a non-academic pathway for industry professionals.

Texas

Texas has three distinct types of certificates. These certifications are based on the industry an individual wants to teach, and the requirements are different, based on industry needs. The three areas are:

- + Industrial Education Certificate
- + Health Science Certificate
- + Marketing Certificate

A bachelor's degree is required for all certificates with two exceptions. Health Science requires an associate degree or higher, and just a high school diploma is required for Trade and Industrial Education. These areas also require a professional license or certificate. Work experience is required for three areas—Health Science, Marketing, and Trade and Industrial Education.

In addition to these state-wide certificates, Texas permits the Department of Education to review and approve district-designed credentialing options to meet CTE shortages, as well as any other teacher shortage area, via their Districts of Innovation option. In the school districts with a District of Innovation designation, a majority of CTE teachers utilize this option.

Colorado

Colorado has an array of CTE teacher certification options that mirror the specific occupational licensure requirements or basic industry expectations for hiring professionals. In some cases, new CTE teachers must meet academic requirements, but only to the extent that they are only required to do so in order to qualify for a position in their field.

Law Enforcement

Content Knowledge:

- + 24 semester hours of related postsecondary coursework verified on an official transcript, with a minimum requirement of three semester hours of content coursework in four areas OR
- + a valid and current Colorado POST certification from the National Academies of Emergency Dispatch

Occupational Experience:

Credit for student teaching (up to 800 hours) in the content area may be applied to either occupational or teaching experience

- + With a bachelor's degree or higher, 2,000 hours of verified occupational (non-teaching) experience in the content area OR
- + With less than a bachelor's degree, 4,000 hours of verified occupational (non-teaching) experience in the content area OR
- + Three years' verified full-time teaching experience in the content area

Personal Care

Content Knowledge

- + 24 semester hours of related postsecondary coursework verified on an official transcript, with a minimum requirement of three semester hours of content coursework in four areas OR
- + Hold a valid and current state-issued cosmetology license.

Occupational Experience

Credit for student teaching (up to 800 hours) in the content area may be applied to either occupational or teaching experience.

- + With a bachelor's degree or higher, 2,000 hours of verified occupational (non-teaching) experience in the content area OR
- + With less than a bachelor's degree, 4,000 hours of verified occupational (non-teaching) experience in the content area OR
- + Three years' verified full-time teaching experience in the content area

Colorado

Outdoor Recreation

Content Knowledge

- + An Associate of Applied Science, Associate of Science, or bachelor's degree in outdoor recreation leadership or other recreation field OR
- + 24 semester hours of related postsecondary coursework verified on an official transcript, with a minimum requirement of three semester hours of content coursework in four areas OR
- + Valid certification in one of the following:
 - o American Mountain Guides Association (AMGA) Single Pitch Instructor
 - o Avalanche Pro-1
 - o Leave No Trace Master Educator/Trainer
 - o U of Q bicycle mechanic
 - o Wilderness EMT
 - o Wilderness First Aid
 - o Wilderness First Responder

Occupational Experience

- + With a bachelor's degree or higher, 2,000 hours of verified occupational (non-teaching) experience in the content area OR
- + With less than a bachelor's degree, 4,000 hours of verified occupational (non-teaching) experience in the content area OR
- + Three years' verified full-time teaching experience in the content area

New Jersey

New Jersey takes a similar approach to Colorado. For individuals without a bachelor's degree, occupational licensure and work experience count towards educational requirements. Typically, new teachers must show evidence of a minimum of four years (8,000 hours) of full-time work in the field in which they plan to teach. To ensure professional expertise, new teachers must demonstrate industry knowledge.

For instance, a new teacher in a **Landscaping and Groundskeeping CTE program** would be certified if:

- + They have eligible employment verified by each employer where the individual worked for the 8,000 hours.
- + Their employers complete a Statement of Practical Experience form, attesting to the candidate's work performance and safety practices.

New Jersey also permits custom-tailored substitutes for experience or training for the 8,000-hour work requirement for 54 CTE programs of study. The substitutes include:

- + Industry credentials that may be considered equivalent to the employment experience requirement. Candidates can submit industry credentials which are subject to review by the New Jersey Department of Education.
- + Up to three years of substantive teaching experience in the occupation may be used as a substitute for three of the required four years of occupational experience.
- + Information on approved teaching experience in an Institution of Higher Education (IHE), a formal training position in a health care facility, and an apprenticeship program or in a military setting.

Option 1: Bachelor's Degree or Higher	Option 2: Associate Degree with Employment Experience	Option 3: Employment Experience Only
Approved Degree Subject Area for Endorsement: • Horticulture and Botany • Landscape Architecture • Landscape Business Management • Landscape Management • Nursery and Greenhouse Plant Production • Plant Pathology • Plant Science • Soil Science • Turf Grass Science	Approved Degree Subject Area for Endorsement: • Horticulture and Botany • Landscape Construction • Landscape Design and Drafting • Nursery and Greenhouse Plant Production • Plant Pathology	Employment experience requirements can be met using one of the following: • Full-time or part-time employment, or both (not self-employment) • Self-employment • Military qualifications and training

Tennessee

Tennessee has an occupational permit process that allows individuals without a teaching background to get a permit to teach for a year while they fulfill other requirements. For that initial permit, the person either needs to an active industry certification in the area they want to teach, or at least three years of relevant work experience, completed within the last five years (or five with the last 10), in the area of endorsement or equivalent educational attainment.

For that individual to continue teaching, the state outlines three pathways to licensure depending on the starting education level.

	Pathway 1	Pathway 2	Pathway 3
Minimum Education	High School Diploma	Bachelor's Degree	High School Diploma
Teaching License Held	N/A	Holds an active Tennessee practitioner academic teacher license or professional academic teacher license with an endorsement covering any of the grades six through 12	N/A
Education Prep (Content Knowledge)	Be enrolled in a State Board-approved educator preparation program with a job-embedded clinical practice	Has completed a State Board-approved academic educator preparation program	Has completed coursework in classroom management, pedagogy, serving students with disabilities and English learners, and the teacher code of ethics from a state board-approved educator preparation provider
Recommendation	Be recommended by the approved educator preparation provider	N/A	N/A
Industry Certification	Hold an active industry certification for the area of endorsement as defined by the department*	Hold an active industry certification for the area of endorsement as defined by the department*	Hold an active industry certification for the area of endorsement as defined by the department*

	Pathway 1	Pathway 2	Pathway 3
Experience (Occupational Experience)	Have a minimum of three years of work experience completed within the last five years or five years of relevant work experience completed within the last 10 years in the area of endorsement or equivalent education attainment, documented in the Occupational Experience and Qualification Form		Have a minimum of three years of work experience completed within the last five years or five years of relevant work experience completed within the last 10 years in the area of endorsement or equivalent education attainment
Additional Requirements	Candidates submit a CTE request to the state along with a completed experience form and documentation of industry certification for review and approval prior to being recommended for licensure by the educator preparation provider where the candidate will be enrolled in an occupational preparation program		Provide proof of pairing with a highly effective mentor teacher

The above outlines the general requirements; however for each endorsement, there are different options to meet experience and industry certification based on the area. For example, below outlines how someone could meet these requirements for Plumbing and Public Health:

Plumbing	
Minimum Education	High school diploma
Experience	a. Three years of relevant work experience, completed within the last five years; b. Five years of relevant work experience, completed within the 10 years; c. Two years of relevant work experience, completed within the last ten 10 years and a postsecondary technical school certificate in Building Construction; d. One year of relevant work experience, completed within the last 10 years and an associate's degree in Building construction; or e. Bachelor's degree in Building Construction <i>Example Qualifying Experience:</i> Pipefitter, plumber, steamfitter, postsecondary technical school instructor in endorsement area
Industry Certification	* NOCTI assessment (Plumbing 5175); * Tennessee Contractor License; * U.S. Department of Labor Office of Apprenticeship Certificate of Completion of Apprenticeship; * Limited Licensed Plumber (LLP) * NCCER certification in endorsement area ¹ ; or * Any directly aligned Tier 2 or 3 credential in the Mechanical, Electrical, and Plumbing Systems program or study within the Architecture & Construction career cluster of Tennessee Promoted Student Industry Credentials. ¹ NCCER certificates without content-specific titles will be accepted for licensure purposes. However, any NCCER certificates used as an industry certification for endorsement purposes must be valid and directly related to the endorsement area

Public Health	
Minimum Education	High school diploma
Experience	a. Three years of relevant work experience, completed within the last five years; b. Five years of relevant work experience, completed within the last 10 years; c. Two years of relevant work experience, completed within the last ten (10) years and a postsecondary technical school certificate related to public health or public health administration; d. One year of relevant work experience, completed within the last 10 years and an associate's degree related to public health or public health administration; or e. Bachelor's/Masters's degree related to public health or public health administration <i>Example Qualifying Experience:</i> Environmental engineer, environmental scientist, epidemiologist, health care administrator, health educator, health services manager, HIV/AIDS educator, midwife, public health nurse, quality investigator, refugee coordinator, postsecondary technical school instructor in endorsement area
Industry Certification	N/A

Delaware

Delaware outlines clear pathways for aspiring CTE teachers through a traditional CTE certification, and for practitioners to become teachers through an alternative pathway called the Skilled and Technical Sciences Certificate - STS). This process recognizes the benefits of each and creates a pathway to continue to have a high bar for educators while providing several different entry points.

For the traditional pathway, an individual goes through a traditional educator prep program, including earning a Bachelor's degree, and then has specific requirements for each of the industries, including the recognized license or credential in that field as appropriate.

For the alternative STS pathway, people have different educational requirements depending on what level of education they start with, allowing for multiple entrypoints

Education Option #1	Education Option #2	Education Option #3
Bachelor's degree from a regionally accredited college or university in any content area	Equivalent of a bachelor's degree Associate's degree and additional education	Equivalent of a bachelor's degree Two years of college or technical training and additional education <i>Note: This is the mandatory MINIMUM level of education for hire.</i>
MUST hold a bachelor's degree in any content area	MUST hold an associate's degree in any content area	Satisfactorily completed two years of college or technical training <i>(U.S. Dept of Education has established that an associate's degree is 60 credits).</i>
AND	AND	AND
Nine career-related credits related to area of certification*	Nine career-related credits related to area of certification*	Nine career-related credits related to area of certification*
Six education pedagogy credits*	Six education pedagogy credits*	Six education pedagogy credits*
	AND the additional requirements of:	AND the additional requirements of:
	21 college credits or their equivalent in professional development or technical training with at least one course in each of the specified content areas**	21 college credits or their equivalent in professional development or technical training with at least one course in each of the specified content areas**
		15 non-duplicated college credits taken either as part of or in addition to a degree program from a regionally accredited college or university, with at least one course in each of the following specified content areas**
15 total college credits in addition to a bachelor's degree	36 total college credits in addition to an associate's degree	15 total college credits in addition to the two years of college or technical training
* All applicable college credits and some technical training may be used to meet the career-related credits and education pedagogy credit requirements. ** Credits may not be used from any existing degrees or college credits to meet the 21 & 15 credit requirements unless the educator has met the 60-credit minimum or the two years of technical training. If the educator has met these minimums, any credits above 60 or beyond the two years of technical training may be applied towards the 21 & 15 requirement.		

Endnotes

1. Bonsu, Pamela, and Nicole Bowman, Carolee Dodge Francis, Eric Larsen, and Rebecca Polar, "Career and Technical Education Teacher Licensure Requirements: 50 States and the District of Columbia," (2013) American Institutes for Research https://careertech.org/wp-content/uploads/sites/default/files/files/resources/CTE_Policy_Scan_Requirements_Licensure2013.pdf3. CTE_Policy_Scan_Requirements_Licensure2013.pdf.
2. "State Fact Sheets," Association for Career and Technical Education (ACTE), accessed July 2025, <https://www.acteonline.org/state-fact-sheets/>, and "Perkins V Enrollment Data," Office of Career, Technical, and Adult Education, U.S. Department of Education, accessed July 2025, <https://cte.ed.gov/pcrn/explorer/enrollment/perkins-v>.
3. Bonsu, Pamela, and Nicole Bowman, Carolee Dodge Francis, Eric Larsen, and Rebecca Polar, "Career and Technical Education Teacher Licensure Requirements: 50 States and the District of Columbia," (2013) American Institutes for Research https://careertech.org/wp-content/uploads/sites/default/files/files/resources/CTE_Policy_Scan_Requirements_Licensure2013.pdf.
4. "The Foundation of Our Economy: Pennsylvania Educator Workforce Strategy 2022-2025," Pennsylvania Department of Education, accessed June 2025, <https://www.pa.gov/content/dam/copapwp-pagov/en/education/documents/educators/educator-workforce-strategy/pa%20educator%20workforce%20strategy.pdf>.
5. "Educator Workforce Annual Report," Pennsylvania Department of Education, accessed June 2025, https://www.pa.gov/content/dam/copapwp-pagov/en/education/documents/educators/educator-workforce-strategy/2024%20educator%20workforce%20annual%20report_pde_final.pdf.
6. Kraft, James and Hans Meeder, "Strengthening Recruitment and Retention of Secondary Career and Technical Education Teachers in the Commonwealth of Pennsylvania," (2025) [Unpublished report submitted to the Pennsylvania Department of Education, Bureau of Career Technical Education].
7. "Postsecondary Credential Workforce Gap Analysis," Commonwealth of Pennsylvania, accessed June 2025, <https://www.pa.gov/content/dam/copapwp-pagov/en/sbhe/documents/pdeworkforcepostsecondarycredentialgapreport.pdf>.
8. "Getting Ahead of the Coming Shortage of CTE Teachers," Student Research Group, accessed July 2025, <https://studentresearchgroup.com/coming-shortage-of-cte-teachers/>.
9. "Analysis of National Data Illustrates CTE Teacher Shortages," Association for Career and Technical Education (ACTE), accessed June 2025, <https://ctepolicywatch.acteonline.org/2023/07/analysis-of-national-data-illustrates-cte-teacher-shortages.html>.
10. Kistler, Hannah C. and Shaun M. Dougherty, "Career and technical education is a hidden weak spot in many high schools' teacher workforces," (2024) Brookings Institute, <https://www.brookings.edu/articles/career-and-technical-education-is-a-hidden-weak-spot-in-many-high-schools-teacher-workforces/>.
11. *ibid.*
12. *ibid.*
13. Kraft, James and Hans Meeder, "Strengthening Recruitment and Retention of Secondary Career and Technical Education Teachers in the Commonwealth of Pennsylvania," (2025) [Unpublished report submitted to the Pennsylvania Department of Education, Bureau of Career Technical Education].

14. National Research Center for Career and Technical Education, "Improving Secondary Career and Technical Education through Professional Development: Alternative Certification and Use of Technical Assessment Data," (2013) <https://files.eric.ed.gov/fulltext/ED574498.pdf>.
15. Constantine, J., Player D., Silva, T., Hallgren, K., Grider, M., and Deke, J., "An Evaluation of Teachers Trained Through Different Routes to Certification, Final Report (NCEE 2009-4043)," (2009) Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education <https://files.eric.ed.gov/fulltext/ED504313.pdf>.
16. "General Act 48 Frequently Asked Questions," Commonwealth of Pennsylvania, accessed June 2025, <https://www.pa.gov/agencies/education/programs-and-services/educators/continuing-education-and-professional-development/act-48-and-perms/frequently-asked-questions/general-act-48-faq#accordion-3f157692c3-item-7be02c7bb4>.
17. "2024 Act 55," Pennsylvania General Assembly, accessed July 2025, <https://www.palegis.us/statutes/unconsolidated/law-information/view-statute?txtType=HTM&SessYr=2024&ActNum=0055.&SessInd=0>.
18. "Career and Technical Education (CTE) Authorization General Information," Colorado Department of Education, accessed June 2025, <https://ed.cde.state.co.us/cdeprof/career-and-technical-education-cte-authorization-general-information>.
19. "Educational Requirements for Skilled and Technical Sciences Teachers," Delaware Department of Education, accessed June 2025, https://education.delaware.gov/legacy/wp-content/uploads/sites/4/2024/06/sts_education_requirements_updated_072921.pdf.
20. "Frequently Asked Questions on Updates to Career-Technical Workforce Development Licenses in Ohio," Ohio Department of Education and Workforce, accessed July 2025, https://education.delaware.gov/legacy/wp-content/uploads/sites/4/2024/06/sts_education_requirements_updated_072921.pdf.

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