

MASSACHUSETTS

Career Technical Education (CTE) Profile



Career and Technical Education

CTE provides secondary and postsecondary students with academic and technical skills and knowledge to prepare for the current and future workforce. The federal legislation that funds CTE, the Carl D. Perkins Career and Technical Education Act, was most recently reauthorized in 2018 as the Strengthening Career and Technical Education Act for the 21st Century (Perkins V).

With the reauthorization of Perkins, CTE is well positioned to fulfill the provisions of next-generation education and workforce legislation (current and proposed) such as the [Higher Education Act](#), [Workforce Innovation and Opportunity Act \(WIOA\)](#), and [Cybersecurity Skills Integration Act](#), as well as important advances in industry such as [apprenticeships](#), [automation](#), and [artificial intelligence](#), which aim to ensure the United States' global competitiveness.

To realize our business, economic, and human potential, we must close equity gaps by gender, race and ethnicity, and special population status (see p. 4) in high-skill, high-wage, in-demand programs and programs of study. This CTE Profile summarizes key data that can support this effort in Massachusetts.

High-Skill, High-Wage, In-Demand: Middle Skill and STEM Jobs

The pipeline to middle-skill and STEM jobs loses young people at every level of the education system. Thus, the supply of sufficiently trained workers will not meet the demand of key industries.

Fast Facts for Massachusetts

From 2017 to 2027...

Computing jobs will grow by **8%**.¹

Engineering jobs will grow by **-2%**.¹

Advanced manufacturing jobs will grow by **1%**.¹

And...

45% of low-income working families have no postsecondary experience.²

38% of students who enter an associate's degree program graduate within 6 years.¹

71% of students who enter a bachelor's degree program graduate within 6 years.¹

Good Jobs That Pay without a BA in Massachusetts (2015)³

The Georgetown Center for Education and the Workforce explored the job market for workers with postsecondary credentials up to and through an associate's degree and focused on good jobs that provide family-sustaining wages.

<i>Top 5 Industries</i>	<i>No. of Jobs</i>	<i>Non-BA Workers</i>	<i>Median Earnings</i>
Health Services	96,000	38%	57,000
Manufacturing	89,000	53%	59,000
Construction	69,000	58%	62,000
Information, Financial Activities, and Real Estate	65,000	62%	63,000
Retail Trade	60,000	35%	57,000
<i>Top 5 Occupations</i>			
Office and Administrative Support	95,000	40%	53,000
Management	76,000	75%	72,000
Construction and Extraction	59,000	58%	62,000
Sales and Related	56,000	43%	62,000
Production	50,000	42%	54,000

Skills Equity Policies That Expand Access to Middle-Skill Jobs⁴

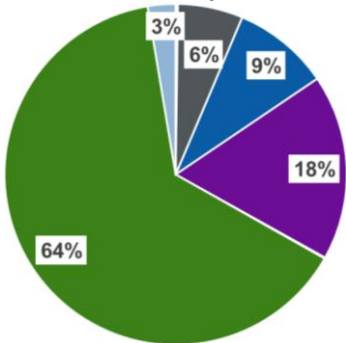
The National Skills Coalition has identified policies that can “expand equitable access to middle-skill training, credentials, and careers—particularly for those who have faced barriers to economic opportunity.”⁴

The policies are...	Are they in place in Massachusetts? (√ = yes, X = no)
Integrated education and training	X
Stacked credentials	√
Job-based financial aid	√
Alignment of these elements in a single policy	X

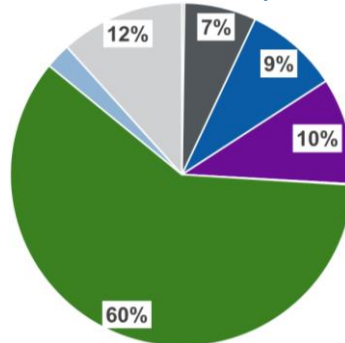
Enrollment and Equity Gaps in Massachusetts

Overall and CTE Participant Enrollment by Race and Ethnicity

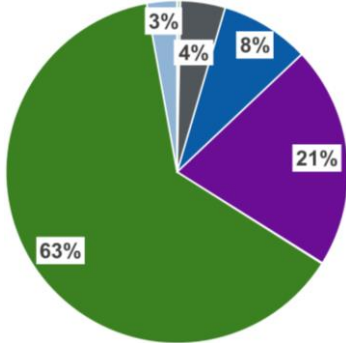
Overall Secondary, FY17⁵



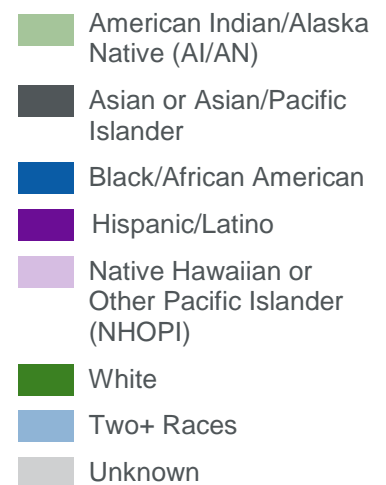
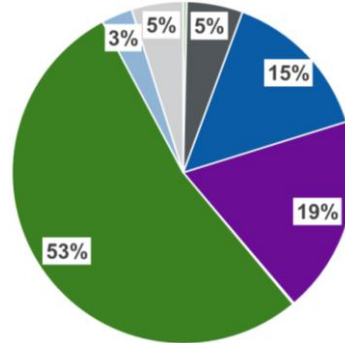
Overall Postsecondary, FY14⁶



CTE Participant Secondary, FY17⁷



CTE Participant Postsecondary, FY17⁷



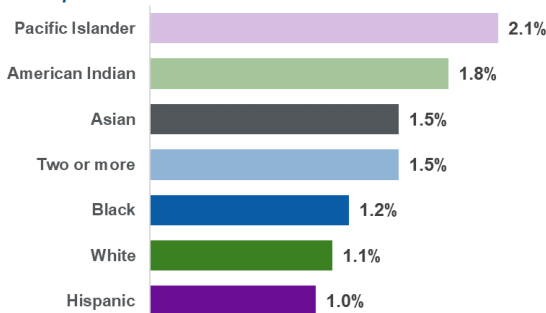
Percentages < 3% are not shown.

Participant = A student who has earned 1 or more credits in any CTE program area.

Participation in Dual Enrollment by Student Group (FY16)⁸

The Community College Research Center reports that dual enrollment is positively related to many positive outcomes, including college enrollment and persistence, greater credit accumulation, and higher college GPA.⁹

Percentage of students within a student group that participates in dual enrollment in Massachusetts



*The Education Commission of the States reports that the “research makes clear that CTE dual enrollment improves outcomes for traditionally underserved students.” CTE dual enrollment students, particularly low-income and male students, are more likely to earn a high school diploma, enroll in a bachelor’s program, and enroll in college full time. Dual enrollment allows students to try out different career paths, which increases engagement and success.*¹⁰

Nontraditional Performance Indicators (FY17)⁷

Under Perkins IV, states reported on the participation and completion of students in nontraditional programs of study, which are defined as leading to occupations in which less than 25% of a particular gender is employed.⁴ In Perkins V, these data will be reported for CTE concentrators (i.e., secondary students who have completed two courses in a CTE program or program of study and postsecondary students who have earned at least 12 credits within a CTE program or program of study or completed such program if less than 12 credit hours total).

Many high-skill, high-wage, in-demand jobs provide family-sustaining wages, yet there are still major disparities by gender and race/ethnicity.

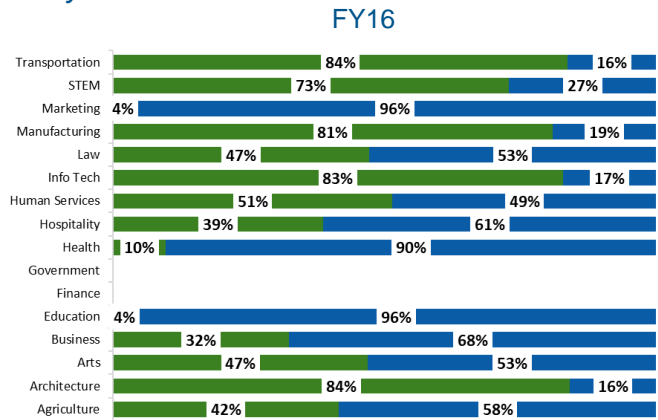
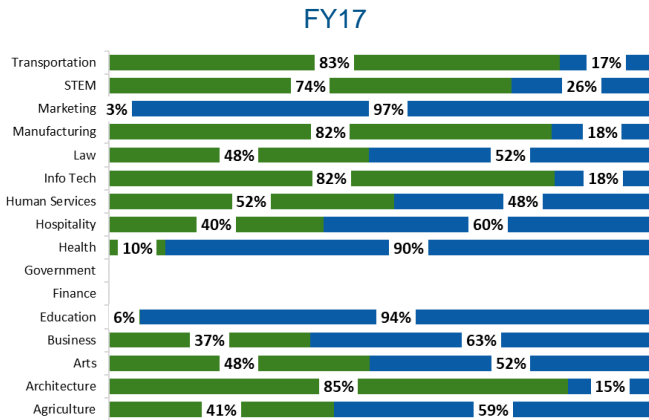
Secondary (%)	Target	Male	Female	AI/AN	Asian	Black	Hispanic	NHOPI	White	Two+
Participation	23	7	45	20	26	27	27	24	22	26
Completion	22	5	44	18	23	23	27	NR	21	27
Postsecondary (%)	Target	Male	Female	AI/AN	Asian	Black	Hispanic	NHOPI	White	Two+
Participation	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Completion	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

Note: Percentages for male and female have been recalculated. See Note 7 below for explanation. NR = Not reported.

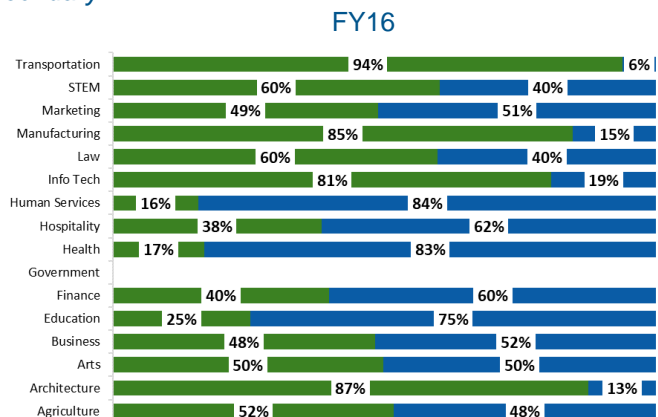
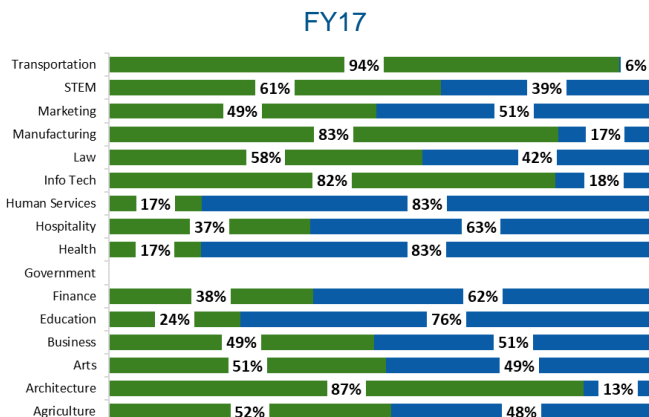
Concentrator Enrollment⁷

Of the 16 career clusters in CTE, 7 lead to high-skill, high-wage, in-demand STEM-related careers (Agriculture, Architecture, Health, Information Technology, Manufacturing, STEM, and Transportation, Distribution, and Logistics) and include programs that prepare students for nontraditional careers. Six of these clusters have a preponderance of programs that lead to nontraditional careers for women, and Health Sciences has many programs that lead to nontraditional careers for men. (■ = male, ■ = female)

Secondary



Postsecondary



Perkins V

Perkins V requires alignment of secondary and postsecondary education with business and industry needs and focuses on high-quality programs leading to high-skill, high-wage, in-demand careers in the region and state. States are required to engage a broad group of stakeholders to develop state and local plans to implement Perkins V. This process entails periodic equity gap analyses at the state and local levels to identify and address disproportionality and equity gaps for students based on gender, race and ethnicity, and special populations (defined below). Funds must be devoted to addressing and closing those gaps to ensure equitable access, inclusion, and outcomes.

The Equity Provisions in Perkins V...

- Increase targeted resources for special populations
- Require reporting of core indicators by gender, race, and special population status
- Require use of funds for career exploration and awareness
- Provide funding flexibility to states to close equity gaps
- Require use of funds to meet the needs of special populations
- Require states and locals to conduct an equity participation and performance gap analysis

Special Populations

Perkins IV	Perkins V
Individuals with disabilities	Individuals with disabilities
Individuals from economically disadvantaged families, including foster children	Individuals from economically disadvantaged families, including low-income youth and adults Youth who are in, or have aged out of, the foster care system
Individuals preparing for nontraditional fields	Individuals preparing for nontraditional fields
Single parents, including single pregnant women	Single parents, including single pregnant women
Displaced homemakers	Out-of-workforce individuals
Individuals with limited English proficiency	English learners
	Homeless individuals
	Youth with a parent who is a member of the armed forces and is on active duty

State CTE Contact

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Notes

Please refer to the following sources for the data reported in this fact sheet:

1. Education Commission of the States at <http://vitalsigns.ecs.org/>; 2. Working Poor Families Project at <http://www.workingpoorfamilies.org/indicators/#>; 3. Georgetown Center on Education and the Workforce at <https://goodjobsdata.org/>, most recent data are for 2015; 4. National Skills Coalition at <https://www.nationalskillscoalition.org/resources/publications/file/Scan-Summary-Final.pdf>; 5. National Center for Education Statistics, ELSI Table Generator, at <https://nces.ed.gov/ccd/elsi/tableGenerator.aspx>; 6. National Center for Education Statistics at <https://nces.ed.gov/DataLab/TablesLibrary/TableDetails/12282?dataSource=IPEDS&ipedsSubject=3&ipedsYear=127&subjectId=3&topicId=6&rst=true>, most recent data are for FY14; 7. Perkins Data Explorer at <https://cte.ed.gov/>; the performance indicators for females and male were recalculated to reflect the percentage of females in programs nontraditional for females and the percentage of males in programs nontraditional for males, which provides a better comparison to the aggregated performance measure based on program enrollment. 8. Community College Research Center at <https://ccrc.tc.columbia.edu/easyblog/access-dual-enrollment-advanced-placement-race-gender.html>; 9. Community College Research Center at <https://ccrc.tc.columbia.edu/media/k2/attachments/dual-enrollment-research-overview.pdf>; 10. The Education Commission of the States at <https://www.ecs.org/clearinghouse/01/11/50/11150.pdf>.