

January 16, 2019

MEMORANDUM

TO: Board of Regents
FROM: David L. Buhler
SUBJECT: Annual Career and Technical Education (CTE) Report

Issue

Each year the Office of the Commissioner of Higher Education prepares a report on Career and Technical Education. Career and Technical Education (CTE) can be defined as organized educational programs offering sequences of courses directly related to preparing individuals for paid or unpaid employment in current or emerging occupations requiring other than a baccalaureate or advanced degree. The CTE report for FY2018 is attached to this memo.

Background

Highlights of the 2018 report include:

- Institutions in the Utah System of Higher Education (USHE) provided the equivalent of approximately 12.2 million membership hours in CTE instruction.
- USHE institutions awarded 5,812 CTE certificates and two-year degrees and enrolled nearly 62,000 CTE participants.
- CTE graduates are expected to produce over \$1.8 billion of added personal income and over \$258 million of added income to the state over someone with a high school diploma.
- Over 18,000 high school students took CTE courses in high school through concurrent enrollment.
- Among state-funded institutions, USHE institutions provided over 74% of the adult post-secondary CTE instruction in the state.
- Over the last few years USHE institutions have developed over 110 new CTE certificate programs, most of which stack to longer programs that provide opportunities for students to earn college-level credentials and also to advance to higher levels of preparation as time and circumstances permit.
- Based on information extracted from Utah's Department of Workforce Services, the job placement rate of USHE's CTE graduates was 91%, not counting those in the military, self-employed, and those employed out-of-state.

- Total cost of instruction per CTE membership hour equivalent was \$11.47.

Policy Issues

There are no policy issues associated with this item.

Commissioner's Recommendation

This is an information item only; no action is required.

David L. Buhler
Commissioner of Higher Education

DLB/BKC
Attachment

Career and Technical Education 2018 Annual Report

Career and Technical Education (CTE) is a key ingredient to meet the needs of Utah's economy. Utah System of Higher Education (USHE) institutions offer CTE programs in all regions of the state, working closely with local business and industry leaders to develop and deliver programs specifically tailored to local workforce development needs. Within USHE CTE courses and programs are offered at Utah State University, Weber State University, Southern Utah University, Snow College, Dixie State University, Utah Valley University, and Salt Lake Community College.

During the 2017-18 academic year, CTE comprised over 22% of the total undergraduate courses offered at USHE institutions, and it accounted for over 18% of undergraduate degrees and certificates awarded.

This report includes data on a diverse and broad array of Career and Technical Education (CTE), credit and non-credit offerings, provided by USHE institutions that prepare people for employment in current or emerging occupations that require postsecondary credentials other than a baccalaureate or advanced degree. It also provides data on statewide programs, Short Term Intensive Training (STIT) and Custom Fit, where industry-specific courses are provided by USHE institutions on contract for individual companies.

Partnering with industry, streamlining credit, and getting students to the workforce quickly- Regional CTE Councils

USHE institutions participate in one of eight regional CTE councils composed of representatives from public school districts, USHE institutions, and where applicable a college within the Utah System of Technical Colleges (UTech). These councils meet regularly to coordinate activities and curriculum, assess industry needs for CTE programs, and identify potential certificate programs that could be developed or strengthened within each region. Regional CTE leaders also consult closely with leaders in industry and workforce development to identify certificate programs to be developed and/or strengthened, focusing on the following:

12,237,945

Membership hours associated with students in CTE courses during 2017-18 at USHE institutions.

5,812

CTE credentials awarded by USHE institutions in 2017-18.

- Determine availability of current CTE offerings in the region
- Develop regional coordination among three CTE stakeholder providers: Utah System of Higher Education, the Utah State Board of Education, and the Utah System of Technical Colleges
- Identify certificates and other programs that could be offered in high-demand, high-wage occupations and that are important to the region
- Identify how certificates and other credentials can complementarily stack to additional certificates, associate's degrees, or other programs
- Identify ways these programs, or portions thereof, might be provided for delivery in high schools through concurrent enrollment

110+
New CTE certificate programs developed by USHE institutions as a result of direct collaboration with business and industry throughout the state since 2011.

This partnership approach focuses on short-term certificates (16-29 credits) as a first step for students seeking a college credential or as a short-term option for older adults retooling for a career change or career advancement. It is expected that students will be more likely to complete a meaningful board-approved credential by the time of high school graduation or shortly thereafter. High school and college students who complete certificates offered through this initiative will:

- Have an earned post-secondary certificate in a relevant field.
- Be prepared for an entry-level position in a career that is in demand and pays high wages.
- Be on an efficient pathway to a one-year certificate and/or degree.

\$51,200
Median 5th-year wages for individuals with a USHE associate degree.

CTE Credentials

The Utah System of Higher Education institutions offer three primary types of CTE credentials:

- **Associate of Applied Science Degrees**—Designed to lead students directly to employment requiring two years of preparation. The Associate of Applied Science (AAS) degree includes a core set of general education preparing students in composition, computation, and human relations. In some cases, AAS programs can serve a dual purpose to prepare students for the workforce while serving as a pathway to a bachelor's degree. The Bachelor of Applied Science degree was recently approved by the Board of Regents. This new degree is able to accommodate Associate of Applied Science degrees as stackable credentials.
- **Certificates of Completion**—Awarded for completion of programs that are typically one-year in length and that prepare students for employment. Certificates of Completion also have a general education component.
- **Certificates of Proficiency**—Short-term programs less than one year in length that prepare students for specific employment skills.

Tuition and Fees

Full-time tuition and fees for credit-based CTE programs during 2017-18 for the seven institutions that provide a CTE role ranged from \$1,836 to \$3,587 per semester.

According to a recent report from the College Board, tuition at Utah's public universities is the third lowest in the nation with an average annual 2018-19 tuition of \$6,990 (United States average equals \$10,230). It typically takes

full-time students one to four semesters to complete a CTE credential, depending on whether a student is working on a certificate or an AAS degree. Many of the USHE CTE programs seamlessly stack to four-year degrees, allowing students efficient and cost-effective means of earning additional college credentials once they complete a CTE program.

Non-credit competency-based CTE programs offered through Utah State University-Eastern, Snow College, and Salt Lake Community College (these colleges have a statutorily-defined technical college role) are offered at tuition rates assessed by contact hour and are comparable to tuition rates charged by colleges within the Utah System of Technical Colleges.

Earnings and Job Placement for USHE CTE Graduates

The median fifth-year annual wages for CTE certificates of less than two years and associate degrees are \$35,337 and \$51,200, respectively. Median fifth-year annual wages for non-CTE associate degrees are \$38,399. In other words, students who earned a USHE associate degree in a CTE area of study had median 5th year annual wages that were \$12,801 higher than their peers who completed non-CTE associate degree. Additionally, the median fifth-year annual wages for CTE certificate and associate degree completers increased over time. Median annual wages for associate degree completers during 2012-13 increased from \$26,917 (first year wages) to \$51,200 (fifth year following completion). More detailed wage information is available in the table below and online at:

<http://higheredutah.org/data/utah-wage-information>. It should be noted that although results showed wage gains for CTE completers, the data may be impacted by a variety of factors including type of program, individual student intent, timing of when students continue their education, immediate short-term industry demand, etc.

91%
The overall job placement rate for recent USHE CTE graduates.

USHE CTE 1st and 5th Year Wages

	Median 1 st Year Wages	Median 5 th Year Wages	Wage Growth
CTE Programs			
Certificates	\$26,917	\$35,337	\$8,420
Associate Degrees	\$37,195	\$51,200	\$14,005
Non-CTE Associate Degrees	\$27,871	\$38,399	\$10,528

The table below shows placement rates for 2016-17 CTE graduates from USHE institutions by area of study – according to the National Center for Education Statistics’ Classification of Instructional Program (CIP) codes.

USHE CTE Job Placement Rate by Area of Study

Classification of Instructional Program (CIP) Group	Placement Rate
Agriculture, Agriculture Operations, And Related Sciences	95.0%
Architecture and Related Services	100.0%
Business, Management, Marketing, And Related Support Services	87.8%
Communication, Journalism, And Related Programs	97.5%
Communications Technologies/Technicians and Support Services	82.9%
Computer and Information Sciences and Support Services	87.8%

Construction Trades	88.4%
Education	95.1%
Engineering	93.5%
Engineering Technologies and Engineering-Related Fields	82.7%
Family and Consumer Sciences/Human Sciences	95.2%
Foreign Languages, Literatures, And Linguistics	100.0%
Health Professions and Related Programs	93.3%
Homeland Security, Law Enforcement, Firefighting and Related Protective Services	93.7%
Legal Professions and Studies	89.5%
Mechanic and Repair Technologies/Technicians	94.3%
Multi/Interdisciplinary Studies	87.5%
Parks, Recreation, Leisure, And Fitness Studies	100.0%
Personal and Culinary Services	95.4%
Precision Production	90.2%
Science Technologies/Technicians	89.9%
Social Sciences	92.9%
Transportation and Materials Moving	80.6%
Visual and Performing Arts	93.8%
Overall Placement Rate	91.0%

The ROI for USHE CTE Graduates

The table below provides an estimate of the wage impact of 2017-18 CTE graduates from USHE institutions. Applying wage and workforce information from the U.S. Census, it is estimated the 5,812 2017-18 CTE graduates will produce more than \$1.8 billion of added income over 30 years of employment than if they had not obtained their CTE credentials. Using taxpayer rate estimates from the Utah Taxpayers Association, it is estimated these graduates will generate an additional \$258 million in state taxes and fees.

\$1.8 Billion
In added income by 2017-18
USHE CTE graduates,
generating over \$258 million in
added state taxes.

	New Credentials Awarded	Est. Work Force Participation Rate	Credentials in Workforce	Amount Earned over High School Level Median Earnings	Total Added Annual Income to Utah's Economy	Est. Additional Tax Contribution to the State (14.14%)
Certificates	2,081	78.6%	1,636	\$3,032	\$4,960,352	\$701,394
Associate Degrees	3,731	78.6%	2,933	\$15,602	\$45,760,666	\$6,470,558
Total	5,812		4,569		\$50,721,018	\$7,171,952
30 years of Employment					\$1,521,630,540	\$215,158,558
Economic Multiplier (1.2)					\$304,326,108	\$43,031,712
Value Added to Utah's Economy and Tax Base (30 Year Estimate)					\$1,825,956,648	\$258,190,270

Source: American Community Survey and DWS Wage Match

CTE in Concurrent Enrollment (high school students)

36,335 high school students enrolled in a college concurrent enrollment course during the 2017-18 academic year. In total, these students earned 268,357 college credits – saving students over \$48 million in total tuition.

53%

Proportion of CTE college-level membership hours earned by high school students via USHE institutions.

50% of all concurrent enrollment students (18,276) enrolled in at least one CTE course. Secondary students earned 79,222 CTE credit hours, or 29.5% of the total concurrent enrollment credit hours earned. This represents the equivalent of 2,376,660 membership hours (79,222 X 30) accounting for 66% of post-secondary CTE enrollment in Utah’s high schools and 53% of total post-secondary membership hours earned by high school students (the Utah System of Technical Colleges served 9,385 high school students with 2,120,844 membership hours as reported in UTech’s 2018 annual report). The total contribution of Utah’s post-secondary institutions to high school students during 2017-18 was significant, providing college-level career preparation opportunities to over 36,000 high school students while helping them fulfill requirements toward post-secondary credentials.

The accompanying tables show unduplicated headcount in CTE concurrent enrollment courses.

Total Concurrent Enrollment, Fiscal Year 2017-18

	Total	CTE
Total Students (Unduplicated Headcount)	36,335	18,276 (50.3%)
Earned Credit Hours	268,357	79,222 (29.5%)

Headcount in CTE Concurrent Enrollment by Institution, Fiscal Year 2017-18

Institution	CTE Concurrent Enrollment (Unduplicated Headcount by USHE institution)
Utah State University	1,146
Southern Utah University	345
Snow College	733
Dixie State University	812
Weber State University	7,256
Utah Valley University	4,809
Salt Lake Community College	3,704
Total	18,805

Enrollment headcounts may total more than system-wide total because students can take courses from more than one institution.

Federal Funding

Institutions within USHE qualify for and participate in federal grant funding through the Carl D. Perkins Career and Technical Education Act of 2006. While a reauthorization of this act was finalized by congress during the summer of 2018, funding from the reauthorization will not be available until FY 2019-20. Funding is provided to the Utah State Office of Education and formulaically distributed to local school districts, the Utah System of Technical Colleges, and USHE institutions that provide eligible CTE programs. This funding is used by USHE institutions to enhance and improve CTE programs and services in ways that are not otherwise provided by state resources.

Perkins funding to institutions is allocated based on the number of students taking CTE courses from the following populations:

- Federal PELL grant recipients
- Students who receive assistance from the Bureau of Indian Affairs
- Students who receive assistance from the Utah Department of Workforce Services

In 2017-18, \$3,446,261 was awarded to USHE institutions through the Perkins Act. Since the program's origination, all USHE institutions receiving Perkins grants have maintained eligibility for continued Perkins funding as it is made available through federal processes. USHE institutions report performance in the following areas related to this program:

- Technical skill attainment
- Completers
- Retention
- Employment
- Non-traditional student participation
- Non-traditional student completion

CTE Cost of Services

Data from Tab I, Table 7 of the 2016-17 USHE Cost Study show the appropriated direct costs per full-time equivalent (FTE) student (30 credit hours/year) for CTE to be \$5,354 (\$5.95 per membership hour). Factoring in indirect costs, the full cost of CTE instruction is \$10,320 per student FTE (\$11.47 per membership hour). As measured on a membership hour basis, the USHE cost of CTE instruction is favorable and competitive when compared to instruction provided by other post-secondary CTE providers.

\$11.47
Total cost per CTE membership hour.

Program Duplication

A recent analysis of USHE and UTech programs indicates there is little, if any, duplication of programs. Using data available from the Integrated Postsecondary Education Data System (IPEDS) for the academic years 2014-15, 2015-16, and 2016-17, only seventeen out of 536 areas of study (based on CIP codes) identified at the same level were within the same service region. Some programs within these sixteen areas of study are part of broader degree programs at USHE institutions and are offered for students who may have longer-term educational objectives than preparation for immediate employment as is most typical in CTE programs.

16,000+
Over 16,000 CTE certificates and associate degrees have been earned by USHE students over the last three years.

Enrollments and Completions

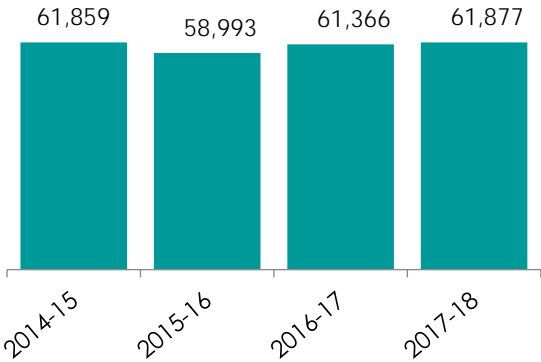
The enrollment and completion information presented below shows credit hours, headcounts, and membership hours in order to create a common comparison of CTE among Utah's public post-secondary institutions. The data show that USHE institutions have seen a consistent number of students taking CTE courses with a small increase in student headcount over 2016-17 (61,877 in 2017-18 vs. 61,366 in 2016-17). Similarly, student FTE in CTE courses increased from 12,490 in 2016-17 to 13,598 in 2017-18).

FTE is a measure, based on the total number of hours taught, of how many students could have been served if all students were full-time. One FTE is equal to 30 credit hours (for credit-based instruction) or 900 membership hours (for non-credit) in a given academic year. For membership and credit hour equivalents, one credit hour equals 30 membership hours.

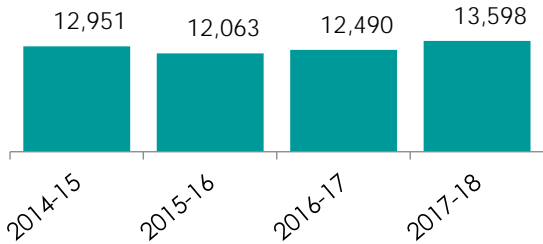
Completions of CTE credentials increased each year for the last two years with 5,812 CTE certificates and associate degrees awarded in 2017-18 compared to 5,503 in 2016-17, 5,046 in 2015-16, and 4,536 in 2014-15. Overall, graduates from USHE CTE programs earned 20,897 CTE credentials over the last four years.

USHE CTE Enrollment (2017-18)

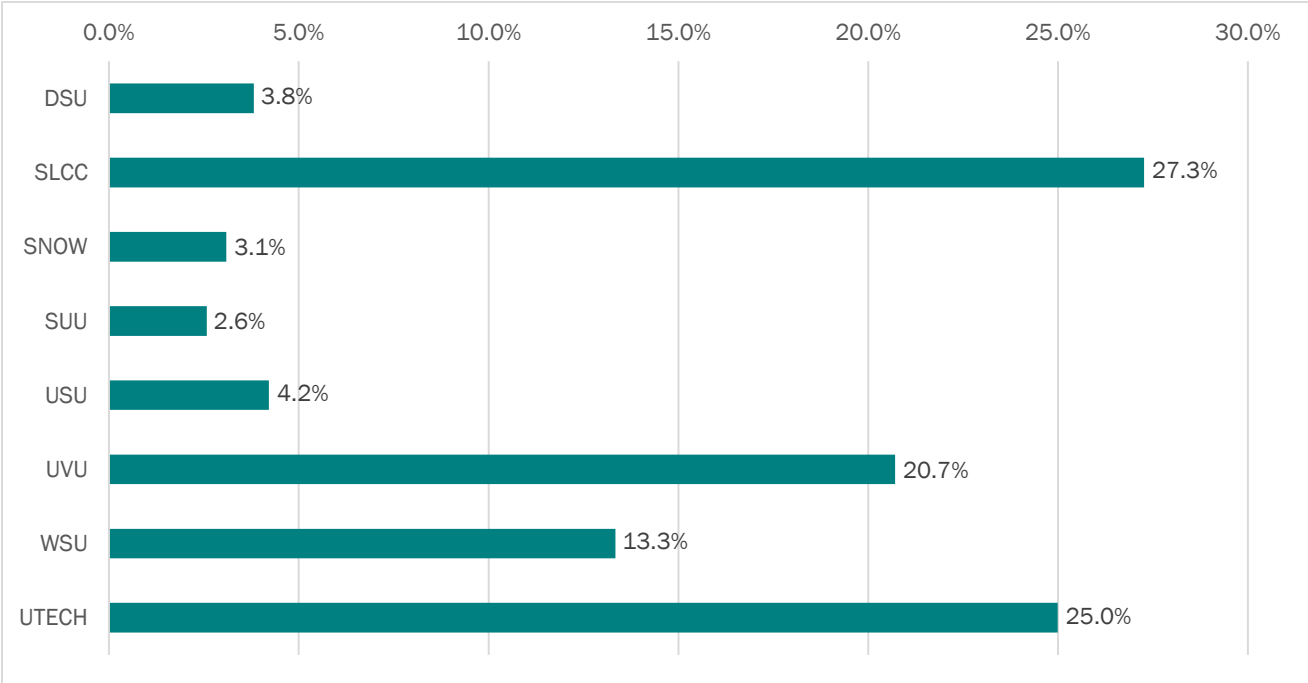
Headcount



Full Time Equivalent (FTE)



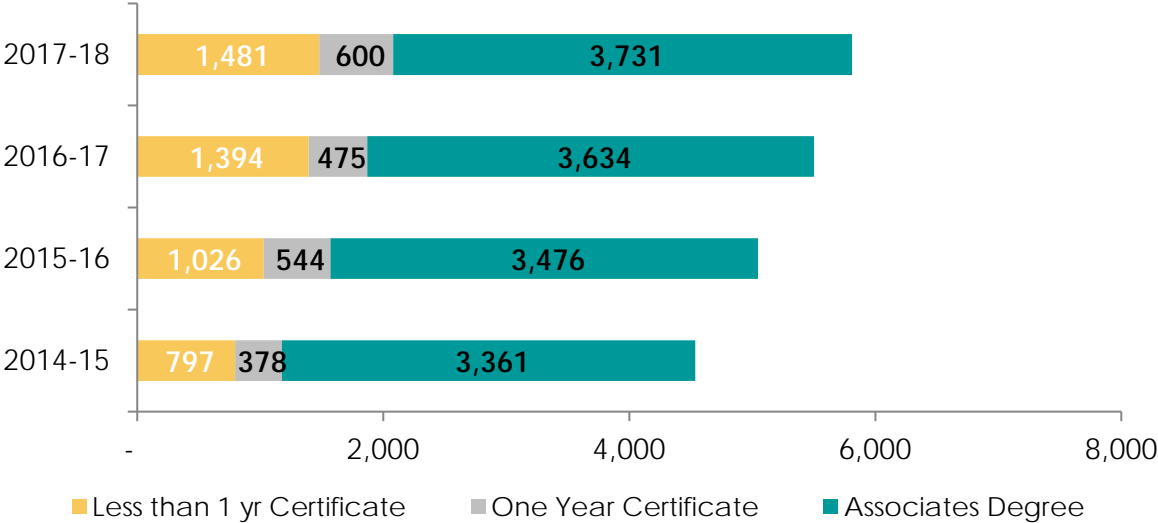
Career and Technical Education (FTE) by Institution (2017-18)



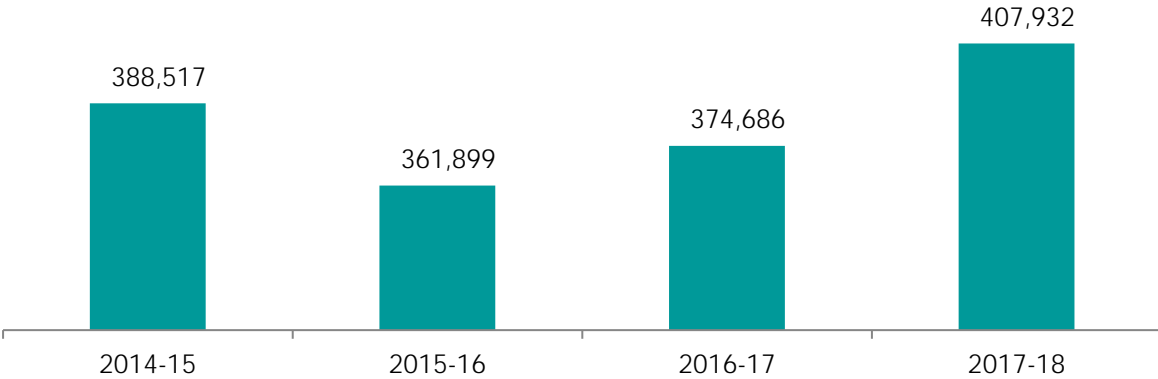
Total USHE CTE Membership Hours and FTE Equivalent by Year

	2015-16	2016-17	2017-18
Non-Credit Membership Hours	260,272	262,772	316,605
Short-Term Intensive Training/Custom Fit Hours	59,453	65,664	55,410
Equivalent Credit Hours (1 credit=30 hrs.)	10,537,230	10,912,140	11,865,930
Total Membership Hours	10,856,955	11,240,576	12,237,945
Full-time Equivalent-FTE (Total Membership Hours/900)	12,063	12,490	13,598

Total Certificates and Degrees Awarded



2017-18 USHE CTE Credit Hour Equivalent



Top 5 Areas of Study, based on 2017-18 certificates/degrees awarded

Program Categories	Less than 1 yr Certificates	1-2 yr Certificates	Associates & 2+ yr Certificates	Total	Percentage Share
Health Professions and Related Programs	408	142	1394	1944	33%
Computer and Information Sciences and Support Services	582	92	335	1009	17%
Business, Management, Marketing, And Related Support Services	119	60	624	803	14%
Engineering Technologies and Engineering-Related Fields	205	33	139	377	6%
Homeland Security, Law Enforcement, Firefighting, Related Protective Services	53	40	245	338	6%

Source: IPEDS Completions Survey

Utah CTE Output Summary

		USHE	UTech*	Total	USHE % Total
Adults	Membership Hours	12,237,945	4,256,810	16,494,755	74.2%
	Student FTE	13,598	4,730	18,328	74.2%
	Student Headcount	61,877	25,799	87,676	70.6%
High School	Membership Hours	2,376,660	2,120,844	4,497,504	52.8%
	Student FTE	2,641	2,356	4,997	52.9%
	Student Headcount	18,276	9,385	27,661	66.1%
Credentials Awarded	Certificate of less than 1 year	1,481	2,755	4,236	35.0%
	Certificates of at least 1 but less than 2 years	600	1,926	2,526	23.8%
	Associate Degrees	3,731	0	3,731	100.0%

*Sources: Utah System of Technical Colleges 2018 Annual Report and IPEDS.

Definitions and Formulas

CTE (Career and Technical Education [Vocational])—CTE programs involve training for what are generally considered technical, high skill jobs such as automotive maintenance, welding, construction, and entry-level healthcare positions.

Credit Hours—A unit used to measure the amount of schoolwork a student has enrolled in or completed as defined by regional accrediting bodies and the U.S. Department of Education.

Membership Hours—The number of assumed student participation hours in a CTE or vocational program. May correlate with “Clock Hours.”

FTE (Full Time Equivalent)—The total number of hours taught at an institution divided by the number of hours considered to be full-time for a student. An FTE student is one undergraduate student enrolled for 15 credit hours per semester. A part-time student may account for only .5 FTE while a student with a heavy course load may account for 1.25 FTE during a given academic year.

- 30 credit Hours = 1 FTE for credit programs
- 900 membership Hours = 1 FTE for non-credit programs

Unduplicated Headcount—The total number of individual students enrolled at an institution, regardless of instruction time. Unduplicated Headcount is only counted once, even though the student may fall into several enrollment categories.

Secondary/Postsecondary—Secondary Education refers to high school (grades 9-12) education. Postsecondary education is any coursework beyond high school.