

January 11, 2016

MEMORANDUM

TO: State Board of Regents  
FROM: David L. Buhler  
SUBJECT: USHE Annual Career and Technical Education 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 FY2016 is attached to this memo.

Background

Highlights of the 2016 report include:

- Institutions in the Utah System of Higher Education (USHE) provided the equivalent of approximately 10.9 million membership hours in CTE instruction.
- USHE institutions awarded 5,046 CTE certificates and two-year degrees and enrolled nearly 59,000 CTE participants.
- CTE graduates are expected to produce over \$300 million of added income to the state over someone with a high school diploma.
- Nearly 17,000 high school students took CTE courses in high school through concurrent enrollment.
- Among state-funded institutions, USHE institutions provided over 70% of the post-secondary CTE instruction in the state.
- Over the last few years USHE institutions have developed over 100 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 79%, not counting those in the military, self-employed, and those employed out-of-state.
- Total cost of instruction per CTE membership hour equivalent was \$10.63.

Policy Issues

There are no policy issues associated with the information.

Commissioner's Recommendation

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

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David L. Buhler  
Commissioner of Higher Education

DLB/BKC  
Attachment

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.

# 10,856,955

Membership hours taken in CTE courses in 2015-16 by students at USHE institutions.

During the 2015-2016 academic year, CTE comprised 22% of the total undergraduate courses offered at USHE institutions, and it accounted for 17% 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 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.

# 5,046

CTE credentials awarded by USHE institutions in 2015-16.

## Partnering with industry, streamlining credit, and getting students to the workforce quickly

Each of Utah's eight regional CTE councils meet regularly to 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:

- 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 College of Applied Technology
- 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

# 100+

New CTE certificate programs developed by USHE institutions as a result of direct collaboration with

- Identify ways these programs, or portions thereof, might be provided for delivery in high schools through concurrent enrollment

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 or greater attainment.

## 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 with a solid basis 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.
- **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

CTE programs are offered at seven of the eight USHE institutions (University of Utah's mission does not include CTE; Salt Lake Community College fills this role in the service region shared by these two institutions). 2015-16 full-time tuition and fees for the seven institutions that carry a CTE role assignment ranged from \$1,742 to \$3,331 per semester.

Tuition and fees at Utah's public institutions of higher education are among the lowest in the nation. 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 CTE programs seamlessly stack to four-year degree programs.

## Earnings and Job Placement for USHE CTE Graduates

The median fifth-year wages for certificates of at least one year and associate degrees are \$32,968 and \$42,453, respectively. More detailed wage information is available online: <http://higheredutah.org/data/utah-wage-information>. Wage data for certificates less than one year were also calculated but are not available on the online reporting tool. Although results showed wage gains over lower educational attainment levels, the data in this category are impacted by a variety of factors including the type of program, individual student intent, immediate short-term industry demand, etc.

**\$42,453**

Median 5<sup>th</sup>-year wages for individuals with a USHE associate degree.

The table below shows placement rates for CTE graduates from a USHE institution for 2014-15 according to their field of study – according to the National Center for Education Statistics’ Classification of Instructional Program (CIP) codes.

**79%**

The overall job placement rate for 2015-16 USHE CTE graduates.

### USHE CTE Job Placement Rate by Area of Study

Classification of Instructional Program (CIP) Group	Placement Rate
AGRICULTURE, AGRICULTURE OPERATIONS, AND RELATED SCIENCES	64.2%
BUSINESS, MANAGEMENT, MARKETING, AND RELATED SUPPORT SERVICES	78.4%
COMMUNICATION, JOURNALISM, AND RELATED PROGRAMS	71.7%
COMMUNICATIONS TECHNOLOGIES/TECHNICIANS AND SUPPORT SERVICES	53.6%
COMPUTER AND INFORMATION SCIENCES AND SUPPORT SERVICES	78.9%
CONSTRUCTION TRADES	88.2%
EDUCATION	68.4%
ENGINEERING	76.3%
ENGINEERING TECHNOLOGIES AND ENGINEERING-RELATED FIELDS	80.3%
FAMILY AND CONSUMER SCIENCES/HUMAN SCIENCES	71.4%
FOREIGN LANGUAGES, LITERATURES, AND LINGUISTICS	87.5%
HEALTH PROFESSIONS AND RELATED PROGRAMS	84.2%
HOMELAND SECURITY, LAW ENFORCEMENT, FIREFIGHTING AND RELATED PROTECTIVE SERVICES	81.2%
LEGAL PROFESSIONS AND STUDIES	78.6%
MECHANIC AND REPAIR TECHNOLOGIES/TECHNICIANS	74.5%
PARKS, RECREATION, LEISURE, AND FITNESS STUDIES	70.6%
PERSONAL AND CULINARY SERVICES	72.0%
PRECISION PRODUCTION	71.8%
SCIENCE TECHNOLOGIES/TECHNICIANS	71.4%
SOCIAL SCIENCES	68.8%
TRANSPORTATION AND MATERIALS MOVING	32.6%
VISUAL AND PERFORMING ARTS	75.2%
<b>OVERALL PLACEMENT RATE</b>	<b>79.1%</b>

*Information is derived from state workforce data and may not include employment of all USHE graduates. For example, state workforce data does not include out-of-state employment, self-employed individuals, federal and military employees, and non-employed students who continued their education.*

## The ROI for USHE CTE Graduates

**\$300**

**Million**

In added income by 2015-16 USHE CTE graduates, generating over \$42 million in added state taxes.

The table below provides an estimate of the wage impact of 2015-16 CTE graduates from USHE institutions. According to the wage and workforce information from the US Census, the 5,046 new CTE graduates will produce over \$300 million of added income to the state over someone with a high school diploma. Using taxpayer rate estimates of the Utah Taxpayers Association, these graduates will generate an added \$42 million in state taxes and fees.

	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	1,570	77.1%	1,211	\$2,144	\$2,596,384	\$367,129
Associate Degrees	3,476	77.1%	2,680	\$2,144	\$5,745,920	\$812,473
<b>Total</b>	<b>5,046</b>		<b>3,891</b>		<b>\$8,342,304</b>	<b>\$1,179,602</b>
30 years of Employment					\$250,269,120	\$35,388,054
Economic Multiplier (1.2)					\$50,053,824	\$7,077,611
<b>Value Added to Utah's Economy and Tax Base (30 yr Estimate)</b>					<b>\$300,322,944</b>	<b>\$42,465,664</b>

## CTE in Concurrent Enrollment (high school students)

29,758 high school students enrolled in a college concurrent enrollment course during the 2015-16 academic year. In total, these students earned 204,423 college credits – saving students over \$34 million in total tuition.

**53%**

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

56% of all concurrent enrollment students (16,695) enrolled in at least one CTE course. Secondary students earned 70,584 CTE credit hours, or 34.5% of the total concurrent enrollment credit hours earned. This represents the equivalent of 2,117,520 membership hours (70,584 X 30) accounting for nearly 60% of postsecondary CTE enrollment in Utah's high schools and 53% of total postsecondary membership hours earned by high school students (the Utah College of Applied Technology served 11,195 high school students with 1,895,904 membership hours as reported in UCAT's 2016 annual report). The total contribution of Utah's postsecondary institutions to high school students is significant and provided college-level career preparation opportunities to nearly 30,000 high school students during the 2015-16 school year while giving these students credit toward postsecondary credentials.

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

## Total Concurrent Enrollment, Fiscal Year 2015-16

	Total	CTE
Total Students (Unduplicated Headcount)	29,758	16,695 (56.1%)
Earned Credit Hours	204,423	70,584 (34.5%)

## Headcount in CTE Concurrent Enrollment by Institution, Fiscal Year 2015-16

Institution	CTE Concurrent Enrollment (Unduplicated Headcount by USHE institution)
Utah State University	982
Southern Utah University	234
Snow College	499
Dixie State University	401
Weber State University	6,873
Utah Valley University	3,945
Salt Lake Community College	3,761
<b>Total</b>	<b>16,695</b>

*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. Funding is provided to the Utah State Office of Education and formulaically distributed to local school districts, the Utah College of Applied Technology, 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 2015-16, \$3,507,129 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 FY15 USHE Cost Study show appropriated direct costs per full-time equivalent (FTE) student (30 credit hours/year) for CTE to be \$4,954 (\$5.50 per membership hour). Factoring in indirect costs, the full cost of instruction is \$9,565 per student FTE (\$10.63 per membership hour).

the  
**\$10.63**  
Total cost per CTE membership CTE  
hour.

Information provided from the Utah State Office of the Legislative Fiscal Analyst and the UCAT 2015 annual report shows UCAT's FY15 direct cost of instruction to be \$6.78 per membership hour (\$39,357,334 direct costs divided by 5,808,226 membership hours) while its full cost of instruction per membership hour was \$15.19 (\$88,196,148 full costs divided by 5,808,226 membership hours). Both USHE and UCAT provide valuable services at comparable and competitive costs to Utah taxpayers.

## Program Duplication

A recent analysis of USHE and UCAT 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 2012-13, 2013-14, and 2014-15, only fifteen out of 307 areas of study (based on CIP codes) identified at the same level were within the same service region. Some programs within these fifteen 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.

## Enrollments and Completions

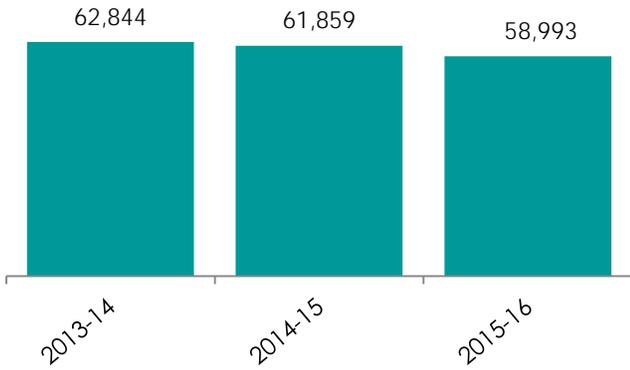
The enrollment and completion information presented below uses the standard CTE definitions used by the federal Carl D. Perkins program (generally accepted measurement nationwide). This information uses both credit hours and membership hours in order to create a common comparison of CTE among Utah's public postsecondary institutions.

As the economy in Utah has improved since the recession years, USHE institutions have seen a reduction in the total number of students taking CTE courses, although the difference between FY2015 and FY2016 was fairly minor (61,859 in 2014-15 compared to 58,993 in 2015-16). This trend is typical during economic recoveries and was expected. While total headcount has retreated some, USHE institutions also experienced a decrease in CTE student FTE (12,951 in 2014-15 compared to 12,063 in 2015-16).

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 year. For membership and credit hour equivalents, one credit hour equals 30 membership hours.

## USHE CTE Enrollment (2015-16)

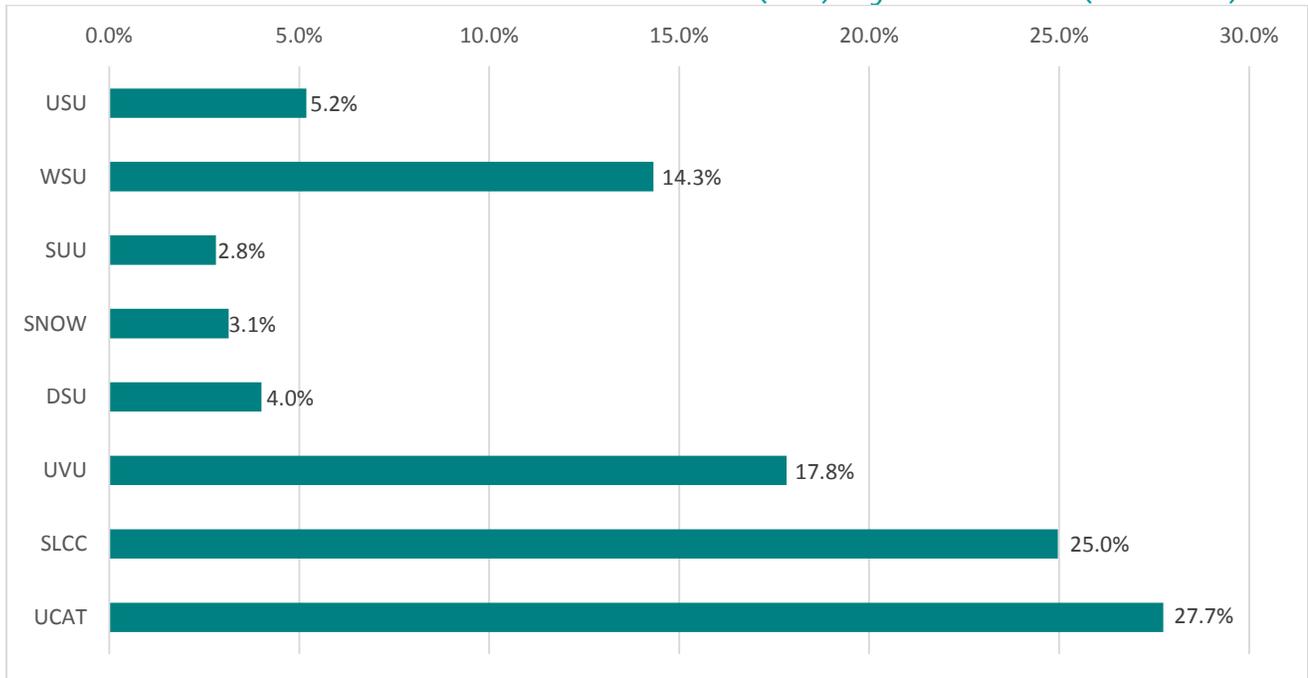
Headcount



Full-Time Equivalent (FTE)



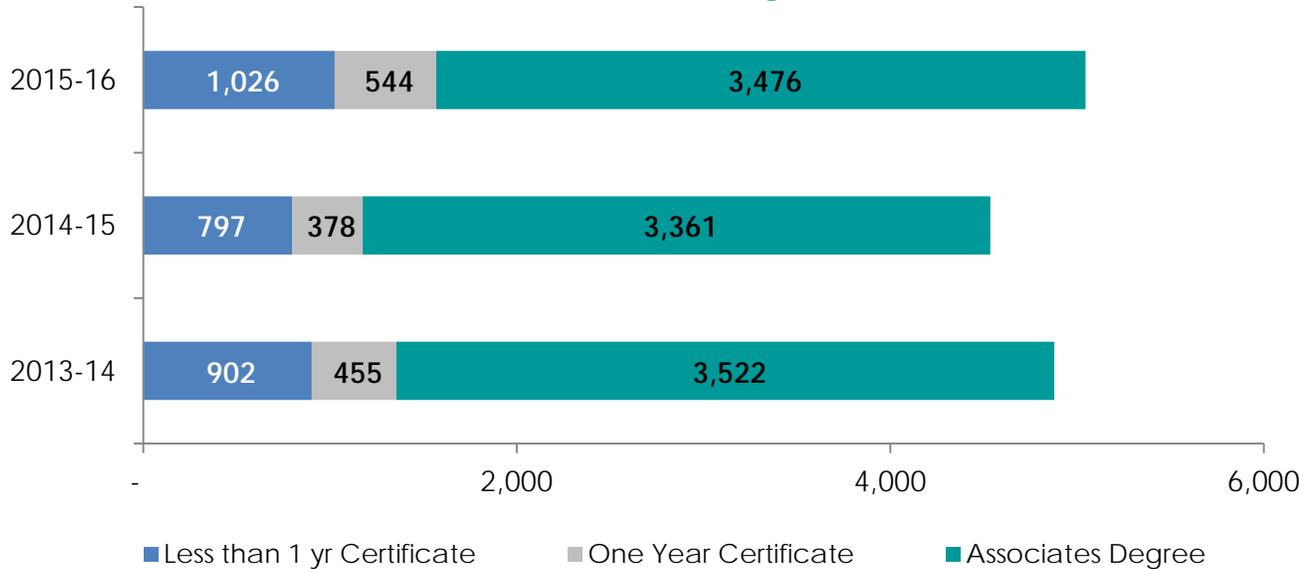
## Career and Technical Education (FTE) by Institution (2015-16)



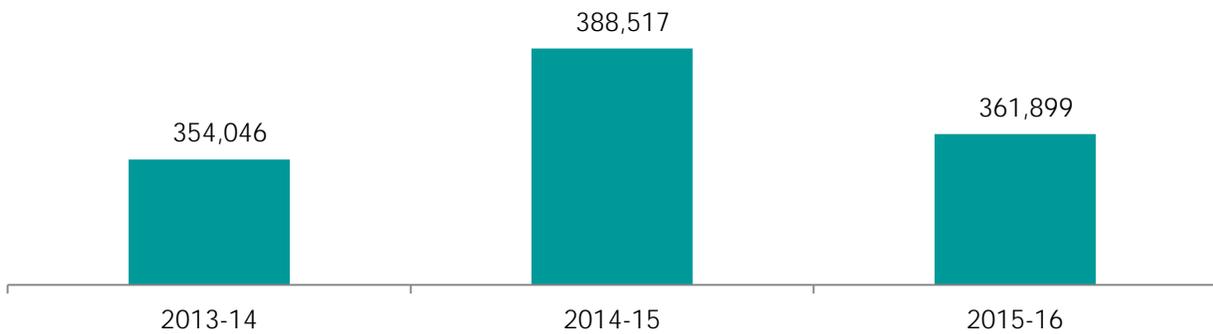
## Total USHE CTE Membership Hours and FTE Equivalent by Year

	2013-14	2014-15	2015-16
Non-Credit Membership Hours	362,013	411,324	260,272
Short-Term Intensive Training/Custom Fit Hours	57,714	51,468	59,453
+ Equivalent Credit Hours (1 credit=30 hrs.)	10,201,650	11,192,730	10,537,230
<b>Total Membership Hours</b>	<b>10,621,377</b>	<b>11,655,522</b>	<b>10,856,955</b>
<b>Full-time Equivalent-FTE (Total Membership Hours/900)</b>	<b>11,802</b>	<b>12,951</b>	<b>12,063</b>

## Total Certificates and Degrees Awarded



## 2015-16 USHE CTE Credit Hour Equivalent



## Top 5 Areas of Study, based on 2015-16 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	354	171	1405	<b>1930</b>	38%
COMPUTER AND INFORMATION SCIENCES AND SUPPORT SERVICES	419	29	328	<b>776</b>	15%
BUSINESS, MANAGEMENT, MARKETING, AND RELATED SUPPORT SERVICES	30	25	446	<b>501</b>	10%
ENGINEERING TECHNOLOGIES AND ENGINEERING-RELATED FIELDS	116	14	176	<b>306</b>	6%
HOMELAND SECURITY, LAW ENFORCEMENT, FIREFIGHTING, RELATED PROTECTIVE SERVICES	57	11	217	<b>285</b>	6%

Source: IPEDS Completions Survey

## Utah CTE Output Summary

		USHE	UCAT*	Total	USHE % Total
Adults	Membership Hours	10,856,955	4,167,788	15,024,743	72.3%
	Student FTE	12,063	4,631	16,694	72.3%
	Student Headcount	58,993	27,790	86,783	67.9%
High School	Membership Hours	2,117,520	1,895,904	4,013,424	52.8%
	Student FTE	2,353	2,107	4,460	52.8%
	Student Headcount	16,695	11,195	27,890	59.9%
Credentials Awarded	Certificates under 600 hours	0	5,293	5,293	0%
	Certificates of 600-900 hours	1,026	1,120	2,146	47.8%
	1+ Year Certificates	544	1,737	2,281	23.9%
	Associate Degrees	3,476	0	3,476	100.0%
Average Cost Per Membership Hour		\$10.63	\$15.19		

*\*Sources: Utah College of Applied Technology 2016 Annual Report and IPEDS. USHE cost data is based on the FY15 USHE cost study, the most recent data available at time of report. UCAT cost data obtained from the Utah State Office of the Legislative Fiscal Analyst and the UCAT 2015 annual report.*

### 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**—Also called 'Clock Hours', assumed to be the number of hours attended at an institution in a CTE or vocational program.

**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.