

---

# 4D

## Information

### *Educator Preparation Committee*

#### Next Steps in the Work Related to Career Technical Education

---

**Executive Summary:** This agenda item provides an update on staff conversations with stakeholders regarding credentialing in the area of Career Technical Education (CTE) and presents an additional proposal for a bridge to a CTE Teaching Credential for currently credentialed teachers.

**Recommended Action:** For information only

**Presenters:** Bob Loux and Jake Shuler, Consultants, Professional Services Division

#### Strategic Plan Goal

##### ***II. Program Quality and Accountability***

- a) Develop and maintain rigorous, meaningful, and relevant standards that drive program quality and effectiveness for the preparation of the education workforce and are responsive to the needs of California's diverse student population.

February 2018

---

## Next Steps in the Work Related to Career Technical Education

---

### Introduction

Recommendations to increase credentialing options for Career Technical Education (CTE) teachers was brought to the Commission during the June 2016, [December 2016](#) and [February 2017 Commission meetings](#). Staff was asked to provide additional background information on CTE credentials and the history of CTE in order for the Commission to make a more informed decision about how to help increase the supply of credentialed CTE teachers. This agenda item presents information on the authorization statements and preparation required for both general education single subject and CTE teaching credentials and brings forward an additional possible bridge for the Commission's consideration.

### Background

With the number of CTE academies and programs in California's public schools increasing, it has been extremely difficult for schools to attract sufficient numbers of certificated CTE teachers to offer the type of comprehensive programs that are needed in the state. As the shortage has intensified, programs turned to the Commission to see what alternative methods of certifying CTE teachers could be developed. Based on the direction of the Commission at the [June 2016 meeting](#), staff worked with the California Department of Education (CDE) to assemble a work group of CTE stakeholders to collaboratively identify recommendations that could potentially increase the number of qualified and credentialed CTE teachers. Four recommendations (described more fully below) were developed by the workgroup for presentation to the Commission in February 2017. Following lengthy testimony and Commission discussion, staff was directed to continue working with stakeholders to evaluate and refine these initial recommendations as well as other approaches that would bring appropriate flexibility into the credential and recognize the wide range of hands-on and technological knowledge and skill needed to appropriately staff CTE academies and courses.

Continued discussions have taken place as to the appropriate preparation and credential requirements for individuals who teach in industry pathway programs where courses may (or may not) carry A-G credit for students. The Commission's policy regarding the appropriate credential for subject matter courses that carry mathematics, English, social sciences, etc., credit is that these courses be taught by single subject credential holders in these subjects. This policy guides the Commission's assignment monitoring activity. CTE credential holders teaching a mathematics-credit bearing course who do not hold an authorization in mathematics would be considered misassigned, even if that course is offered in a CTE program. Provided in Table 1 below are the A-G requirements and the CTC recognized Single Subject teaching credential for each of the groups of courses.

	<b>Subject</b>	<b>Requirement For UC/CSU</b>	<b>Required Credential</b>
a	History/social studies	Two years, including one year of world history and one year of US history	Single Subject History/Social Studies
b	English	Four years	Single Subject English
c	Mathematics	Three years	Single Subject Mathematics
d	Laboratory science	Two years, in at least two of biology, chemistry and physics	Single Subject General Science Single Subject Biology Single Subject Chemistry Single Subject Earth Science Single Subject Physics
e	Language other than English	Two years of the same language	Single Subject World Language in the language corresponding to the course offered
f	Visual and Performing Arts	One year	Single Subject Art or Music, also Theatre or Dance once the requirements have been developed
g	College-preparatory elective	One year from a-f courses	Appropriate credential as defined in a-f above

Provided in Table 2 are the authorization statements for the CTE and Single Subject teaching credentials as well as the industry sectors for the CTE credentials and the content areas for the Single Subject credentials. [Appendix B](#) provides yearly numbers on the number of courses offered in each of the Industry Sectors, the estimated number of FTE represented by the courses, as well as the number of credentials issued.

	<b>Career Technical Education</b>	<b>Single Subject</b>
<b>Authorization Statement</b>	This credential authorizes the holder to teach in the subject or subjects listed in grades twelve and below and in classes organized primarily for adults, in career technical instruction courses.	This document authorizes the holder to teach single-subject-matter (departmentalized) courses within the authorized field or fields listed in grades twelve and below, including preschool, and in classes organized primarily for adults.

	<b>Career Technical Education</b>	<b>Single Subject</b>
<b>Content Areas</b>	<ol style="list-style-type: none"> <li>1. Agriculture and Natural Resources</li> <li>2. Arts, Media, and Entertainment</li> <li>3. Building and Construction Trades</li> <li>4. Business and Finance</li> <li>5. Education, Child Development, and Family Services</li> <li>6. Energy, Environment, and Utilities</li> <li>7. Engineering and Architecture</li> <li>8. Fashion and Interior Design</li> <li>9. Health Science and Medical Technology</li> <li>10. Hospitality, Tourism, and Recreation</li> <li>11. Information and Communication Technologies</li> <li>12. Manufacturing and Product Development</li> <li>13. Marketing, Sales, and Service</li> <li>14. Public Services</li> <li>15. Transportation</li> </ol>	<ol style="list-style-type: none"> <li>1. English</li> <li>2. Mathematics</li> <li>3. History/Social Science</li> <li>4. Science (General Science, Biology, Earth Science, Chemistry, and Physics)</li> <li>5. Art</li> <li>6. Music</li> <li>7. Physical Education</li> <li>8. World Languages</li> <li>9. Agriculture</li> <li>10. Business</li> <li>11. Home Economics</li> <li>12. Health</li> <li>13. Industry and Technology Education</li> <li>14. World Languages: English Language Development</li> <li>15. <i>Dance</i></li> <li>16. <i>Theatre</i></li> </ol>

*Single Subject credential requirements in Theatre and Dance will be developed once the State Board of Education adopts the updated content standards for Theatre and Dance.*

The expectations for the preparation of CTE and general education teachers differ significantly. Table 3 provides a summary of the credential and program requirements for these credentials.

	<b>CTE Teacher</b>	<b>MS/SS Teacher</b>
<b>Entry Requirements<sup>1</sup></b>	<ul style="list-style-type: none"> <li>• High school diploma or GED</li> <li>• 3 years of experience (1,000 hours = 1 year) in an Industry Sector</li> <li>• Live Scan</li> </ul>	<ul style="list-style-type: none"> <li>• College degree</li> <li>• Basic Skills Requirement (CBEST)</li> <li>• Live Scan</li> </ul>
<b>Recency Requirements<sup>2</sup></b>	One year within the last 5 or two years within the last 10 years	None
<b>Additional Requirements</b>	None	<ul style="list-style-type: none"> <li>• Satisfy Subject Matter (CSET or Commission-approved program)</li> <li>• Meet US Constitution requirement</li> </ul>
<b>Preparation Program Addresses</b>	Limited to 9 semester units or 135 hours of preparation: <ul style="list-style-type: none"> <li>• Foundations of Career Technical Education</li> <li>• Equity and Diversity Access to Curriculum for All Students</li> </ul>	Programs are usually between 36 and 55 semester units: <ul style="list-style-type: none"> <li>• Methodology for the content area</li> <li>• Equity, Diversity and Access to the Curriculum for all Students</li> <li>• Classroom Management</li> </ul>

	<b>CTE Teacher</b>	<b>MS/SS Teacher</b>
	<ul style="list-style-type: none"> <li>• Learning and Instruction</li> <li>• Assessing Student Learning</li> <li>• Using technology in the classroom</li> <li>• Classroom and laboratory management</li> <li>• Teaching English learners (SDAIE only)</li> <li>• Teaching Students with Special Needs</li> </ul>	<ul style="list-style-type: none"> <li>• Health, Whole Child, Socio-emotional Learning</li> <li>• Assessing Student Learning</li> <li>• Using technology in the classroom</li> <li>• Teaching English Learners (SDAIE and ELD in the content area)</li> <li>• Teaching Students with Special Needs</li> <li>• Pass a Teaching Performance Assessment</li> </ul>
<b>Clinical Practice</b>	<ul style="list-style-type: none"> <li>• Teacher of Record while completing the preparation program with very limited supervision from the program.</li> </ul>	<ul style="list-style-type: none"> <li>• A minimum of 600 hours of supervised fieldwork with both program and district-employed supervisors</li> </ul>
<b>Term for Preliminary</b>	<ul style="list-style-type: none"> <li>• 3 years</li> </ul>	<ul style="list-style-type: none"> <li>• 5 years</li> </ul>
<b>How to Earn Clear Credential</b>	<ul style="list-style-type: none"> <li>• Teach successfully for 2 years or complete the advanced coursework</li> <li>• Meet US Constitution requirement</li> <li>• Meet Health requirement</li> <li>• Meet Technology requirement</li> </ul>	<ul style="list-style-type: none"> <li>• Complete Teacher Induction program</li> </ul>
<b>Term for Clear Credential</b>	<ul style="list-style-type: none"> <li>• 5 years</li> </ul>	<ul style="list-style-type: none"> <li>• 5 years</li> </ul>
<b>Renewal Requirements</b>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>

<sup>1</sup> An advanced industry certification waives 1 year of Industry Experience, 24/48 units of postsecondary coursework waives 1 or 2 years of Industry Experience, and a Single Subject or Multiple Subject teacher may use their credential and teaching experience to satisfy one of the years of Industry Experience. Each CTE teacher MUST have at least 1,000 hours of Industry Experience to qualify for the Preliminary CTE credential.

<sup>2</sup> The recency of the Industry Experience is satisfied if the individual is a teacher and has taught 1 year within the last five years or 2 years within the last ten years.

**Current Requirements for Earning a CTE Credential for General Education Credential Holders**

A teacher holding a general education teaching credential is not required to complete the full CTE teacher preparation program to earn a CTE teaching credential. The general education teacher must only complete the CTE Foundations course which is described as follows:

Candidates study the history, purpose, administration, funding, programs, services, model standards, and delivery of career and technical education within educational systems. Candidates develop a professional perspective by examining contemporary education policies and teaching practices in relation to fundamental issues, theories and research in education.

The remainder of the CTE preparation program is waived for a teacher holding a general education teaching credential because the general education teacher has completed preparation that is at least as rigorous as that required for CTE teachers. Current regulations allow this option for both Multiple Subject and Single Subject teachers. Because most CTE courses are currently offered in secondary school, it is more likely that a Single Subject teacher will be able to serve as both a general education and career technical education teacher at the same time than for a Multiple Subject teacher to do so.

### **Current Options to Satisfy the Industry Experience**

Through Title 5 regulations, the three years of industry experience (3,000 hours) required by statute for the Preliminary CTE Teaching credential has been broadened and made more flexible for candidates and includes the following options:

- 24 or 48 units of postsecondary vocational training in an appropriate field may substitute for one or two years, respectively, of industry experience.
- An earned Advanced Industry Certificate, as defined in Title 5 regulations, may substitute for one year of industry experience.
- Teaching on a general education credential for a year or more may substitute for one year of industry experience.

All CTE credential candidates, including those who satisfy part of the three years of required industry experience with one of the above options, must complete at least one of those years (1,000 hours) with actual industry experience in the field authorized by the credential. This underscores the intent that the CTE credential have a strong foundation in industry experience. The hours of industry experience has continued to be the most significant hurdle for general education credentialed teachers seeking to add a CTE credential. To address this issue, staff brought several proposals to the Commission in [February 2017](#) that emerged from the CTC, CDE and a stakeholder work group. Provided below is a summary of those recommended proposals and the feedback shared:

#### **1. CTE Teachers earn a Single Subject Teaching Credential**

- A. Allow clear CTE credential holders that hold a bachelor's degree to earn a Single Subject teaching credential by verifying subject matter competence, satisfying basic skills, completing a TPA, and a subject-matter pedagogy class.
- B. Allow a CTE teacher who has a job offer as a single subject teacher and has completed all prerequisites to be an intern (bachelor's, basic skills, subject matter verification and fingerprint clearance) to begin teaching in that subject area. The teacher could earn the preliminary single subject credential through the Intern Early Completion Option (ECO). In an Intern ECO, if the candidate passes the TPA on the first attempt they would not be required to complete any of the other teacher preparation course work.

Option A would necessitate Title 5 Regulations to be promulgated while Option B can be implemented at this time. For Option A, as defined in this agenda item, the CTE teacher would not be required to complete all single subject program requirements. There were concerns

expressed during the [February 2017](#) Commission meeting that the CTE teacher would not be adequately prepared in specific areas (e.g., teaching English learners, teaching students with special needs) to teach departmentalized courses. In Option B, the CTE teacher would be meeting the requirements for the Single Subject ECO as any other individual who is experienced and exemplary as is defined in the Education Code.

**2. *A Single Subject Teacher holding an Externship Credential***

Create a permit that allows single subject teachers with a minimum of 500 hours of industry experience to teach corresponding CTE courses, while earning 250 hours of industry experience every year. A requirement of the permit would be to complete the CTE Foundations course in the first year teaching on the permit. The permit could be renewed if the required 250 hours had been earned and the candidate had fulfilled the CTE Foundations requirement.

When this option was initially shared, the proposed requirement for the initial externship credential was 250 hours of industry experience. Concerns were expressed that 250 hours was insufficient. Additional conversations took place and the proposed externship credential would now call for a minimum of 500 hours of industry experience at entry. While this option would enable single subject teachers a pathway into teaching CTE, concerns about the level of required field experience were expressed by Commissioners during the February 2017 meeting. If a general education teacher has 500 hours of industry experience, applies for and is granted a Preliminary CTE teaching credential, it could take up to six summers for the individual to accrue the additional 1,500 hours of industry experience for the Clear CTE credential. Presuming that single subject credential holders would be willing to undertake such a pathway, requiring a teacher to complete six summers of industry experience could lead that individual to leave teaching for a position in the industry.

**3. *Allow Community College CTE Teachers to teach CTE courses in the public schools***

Waive the Preliminary CTE preparation program for community college faculty. Allow community college CTE instructors to use their years of teaching CTE to adults at the community college level to count towards the two years of experience needed to earn a Clear CTE credential. Community college faculty would be held to the U.S. Constitution requirement.

Concerns were expressed about this option because the way the option is configured at this time, there is no assurance that Community College faculty would have sufficient knowledge and experience related to teaching English learners, teaching students with special needs, working with families and communities, and understanding the public school.

It would be possible to identify the specific knowledge that community college faculty need to be successful with K-12 students. If the community college faculty member were to demonstrate that he or she has the knowledge and skills to teach English learners, teach students with special needs, work with families and their students' communities and has an understanding of public schools, the community college faculty member could be an effective K-12 teacher. The current

9-unit requirement for CTE teachers (summarized in Table 3 above) could be applied to this pathway, which would address concerns raised about this option.

#### **4. *Single Subject Teacher Preparation Programs include preparation for CTE***

Institutions could be encouraged to offer the CTE Foundations course to their current Single Subject credential candidates, which would enable the Single Subject candidates that had the required industry experience to be eligible for their Preliminary CTE credential and understand how CTE fits into the high school curriculum.

This option can be readily implemented by the Commission. If an entity sponsors Single Subject teacher preparation as well as CTE teacher preparation, the entity can screen all candidates for industry experience and encourage candidates who have sufficient industry experience to complete the CTE Foundations course. The institution would then be able to recommend the completer for both a single subject and a CTE teaching credential.

Staff has continued to talk with stakeholders about the CTE teacher pipeline and how to develop additional pathways to the CTE credential. During recent conversations with individuals from industry and the California Teachers Association Career Technical Education Committee the possibility of a more limited CTE authorization was considered.

#### **An Additional Bridge Option to Consider**

Building off of the second bridge option in this agenda item, the Commission could develop a CTE Added Authorization which could be added to a general education teaching credential based on a minimum of 500 hours of industry experience. While the teacher holds the authorization, he or she would be required to complete the CTE Foundations course and accrue an additional 500 hours of industry experience within two or three years. In addition, each teacher would need to be aware of the safety requirements for the industry sector prior to starting in the classroom.

To address concerns about adequate experience in the industry sector, an individual holding the Added Authorization would be limited to teaching the introductory or exploratory courses in CTE Pathways but not a capstone CTE course. The capstone course could only be taught by a teacher with a full CTE credential. A teacher could continue to teach on the CTE Added Authorization or, if the individual accrued sufficient hours of industry experience, he or she could apply for the full CTE credential.

#### **Other Policy Considerations for CTE Credentials**

##### *Preliminary or Intern Credential*

Per Education Code §44260, the initial CTE credential an individual may earn is a Preliminary teaching credential. For all other types of credentials—teaching and services credentials—an individual earns a Preliminary credential once he or she has completed an initial preparation program. For the Designated Subjects teaching credentials, of which CTE is one of the credentials, an individual is given a Preliminary credential based on the hours of industry experience without needing to complete an initial preparation program. The Commission may want to consider issuing new CTE teachers an Intern credential rather than a Preliminary credential while they



complete initial preparation for the CTE Preliminary credential. This change would require the legislature to take action.

#### *One Set of Credential Requirements for Large Variations Across the Industry Sectors*

Currently, California's CTE credentials are categorized in 15 Industry Sectors and the entry requirements for all CTE teachers are the same – 3,000 hours of industry experience. It might be important to examine the various industry sectors to determine if there are specific occupations within sectors where 3,000 hours may not be adequate or may be too high, or where experience in one occupation within a sector is not appropriate to authorize the teaching of all occupations in that sector. This would be a complex analysis in that the industry sectors are quite broad, but this type of information could inform the Commission as it continues to consider appropriate credentialing requirements in Career Technical Education. Changing the requirements so that the industry sectors are treated differentially would require legislative action.

#### **Commission Discussion**

This agenda item provides information on the current requirements an individual must meet to earn a general education (MS/SS) teaching credential and a CTE teaching credential. Some stakeholders expressed concerns about the four possible bridges presented to the Commission previously. The Commission could modify the previously presented options in ways that respond to stakeholder concerns, and include the additional bridge option described in this agenda item to provide immediate relief and flexibility to address shortages in this credential area. At the same time, questions from Commissioners and the field regarding the nature of appropriate field experience in each industry sector suggest the need for further study as the Commission considers larger and longer term solutions to credentialing in this field.

#### **Next Steps**

Based on Commission discussion of short term and long term solution strategies, staff will develop a plan for next steps.

## Appendix A

### Career and Technical Education Teacher Licensure Requirements: 50 States and DC, June 2013

State	Work Experience Required	Other Major Requirements	What is Needed for SS Teacher to Earn a CTE Credential
Alaska	4 years		CTE endorsement- completion content-area exam
Arizona	6,000 hours	BA/BS	
Arkansas	4 years	BA/BS	
California	3 years	HS diploma	
Colorado	Depends on content area	BA/BS	CTE endorsement- completion content-area exam
Connecticut	NA		
Delaware	6 years	2 years college	
Florida		BA/BS, teach credential	CTE endorsement- demonstrate mastery in CTE subject area
Georgia	2 years		CTE endorsement- completion content-area exam
Hawaii		Content area exam, or certification, or 30 college hours	
Idaho		Preservice workshop, teacher induction workshop	
Illinois	2,000 hours	60 semester hours	
Indiana		Content expertise, proficiency in math and English	
Iowa	6,000 hours		
Kansas	4,000 hours		CTE endorsement- completion content-area exam
Kentucky	4 years		CTE endorsement- completion content-area exam
Louisiana	4 years		
Maine		6 credits of study	CTE endorsement- completion content-area exam
Maryland	2 years w/AA or 3 years w/High School Diploma		
Massachusetts	Verify work experience		
Michigan	2 years	BA/BS	
Minnesota	4 years		
Mississippi	2 years		
Missouri	6,000 hours		
Montana	10,000 hours		

State	Work Experience Required	Other Major Requirements	What is Needed for SS Teacher to Earn a CTE Credential
Nebraska		Prescribed course of study, apprenticeship, proficiency in career, passing competency test	
Nevada	5 years		
New Hampshire	4,000 hours		
New Jersey	2 years w/AA or 4 years		
New Mexico	2 years w/AA or 5 years		
New York		BA/BS, Alt Ed Program	
North Carolina	5 years		
North Dakota		BA/BS and specific requirements, or letter stating no licensed applicant available	
Ohio	5 years	4 hours CTE coursework	
Oklahoma	2 years	BA/BS	
Oregon	Bus & Industry exp	18 credits of teacher prep	
Pennsylvania		Occupational Competency Test	
Rhode Island	5 years	NOCTI and Praxis II exams	
South Carolina		Education coursework	
Tennessee	3-5 years		
Texas	Related work exp	BA/BS	
Utah	2 years w/BA/BS, 4 years w/AA, 6 years, or skills assessment		
Vermont	NA		
Virginia	NA		
Washington	3 years		
West Virginia	NA		
Wisconsin		BA/BS, must be in shortage area	
Wyoming	2 years	BA/BS for some	
Washington DC	2 years journeyman level	Occupational Competency Test	

Pamela Bonsu - *American Institutes for Research*

Nicole Bowman, Carolee Dodge Francis, Ed.D., Eric Larsen, Rebecca Polar - *Bowman Performance Consulting*

Full Report:

[https://cte.careertech.org/sites/default/files/files/resources/CTE\\_Policy\\_Scan\\_Requirements\\_Licensure2013.pdf](https://cte.careertech.org/sites/default/files/files/resources/CTE_Policy_Scan_Requirements_Licensure2013.pdf)

**Appendix B**  
**California's Career Technical Education Courses and Enrollment by Industry Sector,**  
**2012-13 to 2014-15**

Subject	2012-13		2013-14		2014-15		% change in Estimated FTE (2012-13 to 2014-15)
	Number of Courses	Estimated FTE	Number of Courses	Estimated FTE	Number of Courses	Estimated FTE	
Agriculture and Natural Resources	3,695	541	4,015	608	4,176	643	19%
Arts, Media, and Entertainment	6,552	957	6,680	995	7,068	1,041	9%
Building and Construction Trades	2,503	355	2,317	342	2,385	341	-4%
Business and Finance	7,887	888	6,394	700	6,006	692	-22%
Education, Child Development, and Family Services	5,261	562	5,461	569	5,382	560	0%
Energy, Environment, and Utilities	530	81	481	75	439	71	-12%
Engineering and Architecture	1,868	281	1,949	310	2,171	354	26%
Fashion and Interior Design	740	77	757	78	731	74	-4%
Health Science and Medical Technology	3,080	317	2,972	333	3,396	369	16%
Hospitality, Tourism, and Recreation	3,712	460	3,632	457	3,883	471	2%
Information and Communication Technologies	1,664	245	3,643	510	4,348	620	153%
Manufacturing and Product Development	2,062	287	1,531	217	1,699	240	-16%
Marketing, Sales, and Service	1,013	97	1,520	151	1,346	149	54%
Public Services	1,721	150	1,504	156	1,745	153	2%
Transportation	2,223	245	2,217	249	2,395	252	3%
<b>Totals</b>	<b>44,511</b>	<b>5543</b>	<b>45,073</b>	<b>5750</b>	<b>47,170</b>	<b>6,030</b>	<b>8.8%</b>

### Career Technical Education (CTE) Teaching Credentials<sup>1</sup>

<b>Preliminary Credentials</b>	<b>2012-13</b>	<b>2013-14</b>	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>
Agriculture and Natural Resources	23	24	35	48	39
Arts, Media, and Entertainment	189	208	256	339	430
Building and Construction Trades	81	140	119	120	94
Business and Finance	92	131	165	193	166
Education, Child Development, and Family Services	77	80	127	150	231
Energy, Environment, and Utilities	15	15	21	27	33
Engineering and Architecture	41	34	88	91	103
Fashion and Interior Design	6	11	33	38	28
Health Science and Medical Technology	185	180	242	265	222
Hospitality, Tourism, and Recreation	67	61	73	79	69
Information and Communication Technologies	93	125	140	196	220
Manufacturing and Product Development	33	29	50	70	96
Marketing, Sales, and Service	38	48	75	82	89
Public Services	90	101	111	105	65
Transportation	37	45	55	50	38
<b>Totals Credentials Issued by Industry Sector<sup>2</sup></b>	<b>1067</b>	<b>1232</b>	<b>1590</b>	<b>1853</b>	<b>1923</b>
<b>Totals Credentials Issued<sup>2</sup></b>	<b>869</b>	<b>996</b>	<b>1,251</b>	<b>1,435</b>	<b>1,827</b>

<b>Clear Credentials</b>	<b>2012-13</b>	<b>2013-14</b>	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>
Agriculture and Natural Resources	29	31	33	24	27
Arts, Media, and Entertainment	125	149	128	198	185
Building and Construction Trades	77	132	107	92	92
Business and Finance	112	189	154	127	137
Education, Child Development, and Family Services	47	53	52	61	71
Energy, Environment, and Utilities	10	8	15	8	14
Engineering and Architecture	29	28	31	38	40
Fashion and Interior Design	7	17	12	16	18
Health Science and Medical Technology	119	184	146	149	157
Hospitality, Tourism, and Recreation	55	59	65	66	64
Information and Communication Technologies	115	166	147	126	114
Manufacturing and Product Development	35	24	42	36	31
Marketing, Sales, and Service	42	67	46	49	59
Public Services	68	75	68	62	64
Transportation	45	52	50	35	52
<b>Totals Credentials Issued by Industry Sector<sup>2</sup></b>	<b>915</b>	<b>1236</b>	<b>1095</b>	<b>1087</b>	<b>1125</b>
<b>Totals Credentials Issued<sup>2</sup></b>	<b>685</b>	<b>907</b>	<b>767</b>	<b>776</b>	<b>826</b>

<sup>1</sup> It is important to note that for CTE teachers, the number of new Preliminary credentials issued indicates the number of new individuals teaching in CTE classrooms while the number of Clear credentials issued indicates the numbers of individuals who have completed the CTE teacher preparation program and have taught for two years.

<sup>2</sup> An individual may apply for and be granted more than one industry sector on a CTE credential. The number of individuals who earned a credential in the sector.