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# 3B

## Action

### *Professional Services Committee*

## Report to the Legislature and the Governor on Career Technical Education (CTE)

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### AGENDA INSERT

**Executive Summary:** This report presents the Report to the Legislature and the Governor on Career Technical Education, as required by SB 52 (Chap. 520, Stats. 2007), for Commission approval.

**Recommended Action:** Staff recommends that the Commission approve the following report on Career Technical Education (CTE) for transmittal to the Legislature and the Governor pursuant to SB 52 (Chap. 520, Stats. 2007).

**Presenter:** Helen Hawley, Consultant,  
Professional Services Division

**Strategic Plan Goal: 1**

**Promote educational excellence through the preparation and certification of professional educators.**

- ◆ Sustain high quality standards for the preparation and performance of professional educators and for the accreditation of credential programs.

March 2008

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# Report to the Legislature and the Governor on Career Technical Education (CTE)

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## Introduction

This agenda item presents the report to the Legislature and Governor on the Designated Subjects Career Technical Education Certification, as required by the Commission and SB 52 (Chap. 520, Stats. 2007). The report contains ten recommended modifications to the Designated Subjects Career Technical Education Credential. Two additional changes were specifically mandated by SB 52 and this item reports on the implementation of those changes.

## Background

In December 2006, the Commission directed staff to begin the review and revision of the structure and requirements for the Designated Subjects Career Technical Education Credential. The Career Technical Education Advisory Panel was formed in February 2007 and began its collaborative work in March 2007. The report contained in this agenda item represents the Commission's report to the Governor and Legislature based on the outcomes of the Career Technical Education Advisory Panel efforts, including its recommendations for modifications to the Career Technical Education Credential.

On October 12, 2007, Governor Schwarzenegger signed SB 52 (Chap. 520, Stats. 2007) into law. Because the bill was an urgency bill, its provisions became effective immediately upon the Governor's signature. Those provisions:

1. changed the name of the credential to the "Designated Subjects Career Technical Education (CTE) Teaching Credential."
2. required the Commission to establish a list of authorized subjects for the CTE credential by September 30, 2007, consistent with the 15 industry sectors identified in the *California Career Technical Education Model Curriculum Standards* adopted by State Board of Education.
3. required that programs of teacher preparation be consistent with full-time and part-time service.
4. required the Commission to convene an advisory committee to review credential requirements and make recommendations for consolidating requirements for full-time and part-time service with a focus on streamlining the credential structure and reducing barriers to individuals becoming CTE teachers.
5. required the Commission to make recommendations to the Legislature on the minimum requirements for the credential by April 1, 2008.

**Recommendation**

Staff recommends that the Commission approve the attached report on Career Technical Education (CTE) for transmittal to the Legislature and the Governor pursuant to SB 52 (Chap. 520, Stats. 2007).



COMMISSION ON  
TEACHER CREDENTIALING

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*Ensuring Educator Excellence*

*A Report to the Legislature and the Governor  
on Career Technical Education (CTE)  
pursuant to SB 52 (Chap. 520, Stats. 2007)*

March 2008

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# Report to the Legislature and the Governor on Career Technical Education (CTE)

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## Executive Summary

As directed by the Commission and required by SB 52 (Chap. 520, Stats. 2007), an advisory panel of stakeholders was formed to study the structure and requirements for the Career Technical Education credential and make proposed recommendations for consideration by the Commission.

In December 2006, the Commission directed staff to begin the review and revision of the structure and requirements for the Career Technical Education credential. The panel began its study and deliberations in March 2007. In October 2007, as the panel was continuing its work, the Legislature passed SB 52 (Chap. 520, Stats. 2007) as an urgency measure.

SB 52 required two major efforts to be undertaken by the Commission: 1) to immediately implement specified changes to the Career Technical Education credential; and 2) to convene an expert panel to make recommended changes to the Career Technical Education credential requirements and standards.

To respond to the first mandate, immediately upon its passage and pursuant to the provisions of SB 52, the Commission changed the name of the Designated Subjects Vocational Education Credential to the “Designated Subjects Career Technical Education Credential” and aligned the prior 175 vocational credential authorizations to the 15 industry sectors identified in the *Career Technical Education Model Curriculum Standards*. On October 22, 2007, the Commission notified the field regarding the change in the name of the credential and the restructuring of the vocational credential authorization to the 15 industry sectors, as required by SB 52. The fifteen sectors are:

1. Agriculture and Natural Resources
2. Arts, Media, and Entertainment
3. Building Trades and Construction
4. Education, Child Development, and Family Services
5. Energy and Utilities
6. Engineering and Design
7. Fashion and Interior Design
8. Finance and Business
9. Health Science and Medical Technology
10. Hospitality, Tourism, and Recreation
11. Information Technology
12. Manufacturing and Product Development
13. Marketing, Sales, and Service

- 14. Public Service
- 15. Transportation

On December 14, 2007, the Commission issued Coded Correspondence 07-19 which included the specific details of those changes. This correspondence is available on the Commission's website at <http://www.ctc.ca.gov/notices/coded/0719/0719.pdf> All new career technical education credentials issued since October 12, 2007 have been issued as Career Technical Education credentials within one or more of the 15 occupational sectors.

The second major effort required by SB 52 was for the Commission to convene an expert panel to develop recommendations to the Legislature for streamlining the CTE credential structure, focusing on skills identified as essential for providing successful career technical instruction. The bill required the panel to complete its work and report to the Commission. Then the Commission is charged to report to the Legislature and the Governor by April 1, 2008. Although the work already begun by the Commission's existing CTE advisory panel earlier in 2007 was well-aligned with these objectives and provisions of SB 52, the legislation provided additional policy direction for the advisory panel's work concerning making recommendations on the structure and requirements for the Career Technical Education credential. As such, the panel's charge included the following tasks and objectives:

- Review career technical education credential requirements to determine if they are appropriate to meet the need for teachers in today's K-12 schools, and recommend new or modified requirements where necessary.
- Review credential types and authorizations for alignment to the adopted *California Career and Technical Education Model Curriculum Standards (2005)* and the current instructional needs for K-12 career technical education teachers, and recommend changes to the current types and authorizations consistent with these factors.
- Review and update career technical education teacher preparation program standards to be consistent with California statutes and current research-based best practices for teachers, and recommend updated standards and program requirements as needed to the Commission.

To carry out this focused charge, the CTE Advisory panel reviewed current (2007) data on CTE teachers, the latest information about federal requirements, activities in this area being carried out in other states, and extensive current research on career technical education in California and the nation.

Given the broad scope of the work outlined in both the original charge to the panel and the charge added by the provisions of SB 52, the CTE panel decided on an organizing rubric for the recommendations it would make. The recommendations would be presented under one of three major headings: (1) Recommendations addressing issues relating to streamlining *credential requirements* in order ultimately to increase CTE teacher supply; (2) Recommendations addressing issues relating to *credential types and authorizations* in order to improve alignment with California student academic content standards and the skills needed by CTE teachers to successfully teach all students; and (3) Recommendations addressing issues relating to *CTE teacher preparation program standards* in order to update these standards in line with research

and best practices in the CTE field. Based on the work of the CTE Panel, the Commission presents the following recommendations. It should be noted that the recommendations are listed in accordance with the guidelines of the legislation, as reflected in the three broad category headings under which the recommendations are listed. It should be noted that some recommendations may span two or more categories.

**(1) Recommendations addressing issues relating to streamlining *credential requirements* in order ultimately to increase CTE teacher supply**

- Reduce the length of the term of the Preliminary CTE credential from 5 years to 3 years
- Reduce the required number of years of work experience from 5 years to 3 years
- Add advanced industry certifications to the list of activities that qualify as work experience
- Expand the requirement for recent work experience to one year in the last three years or two years in the last five years.
- Move the U.S. Constitution requirement from a Preliminary to a Clear credential requirement
- Expand the options for completing the advanced CTE preparation (Level II) to include professional development options that are equal to or greater than the current CTE advanced preparation
- Count teaching experience with a valid multiple or single subject teaching credential for up to one year of work experience even if it is not directly related to the CTE credential area
- Require all CTE credential holders to complete preparation in CTE foundations unless this preparation has been previously met through similar coursework that includes the laws pertaining to career technical education and the development of career technical education.
- Establish that the CTE credential should authorize both full- and part-time teaching assignments, with adequate preparation that does not negatively impact teachers.
- Consider a new credential pathway for industry experts who may want to teach for a brief period.

**(2) Recommendations addressing issues relating to *credential types and authorizations* in order to improve alignment with California student academic content standards and the skills needed by CTE teachers to successfully teach all students**

- Add advanced industry certifications to the list of activities that qualify as work experience
- Establish that the CTE credential should authorize both full- and part-time teaching assignments, with adequate preparation that does not negatively impact teachers or students.

- Consider a new pathway for industry experts who may want to teach part-time for a brief period.
- Require an early teaching orientation for all new CTE teachers
- Require training for all CTE teachers in how to teach English learners
- Require that an approved program sponsor recommend the individual for the credential
- Expand the options for completing the advanced CTE preparation for the Clear Credential) to include professional development options equal to or greater than the current CTE advanced preparation.
- Count teaching experience with a valid multiple or single subject teaching credential for up to one year of work experience even if it is not directly related to the CTE credential area. Continue to require the credential holder to complete preparation in CTE foundations unless this preparation has been previously met through similar coursework that includes the laws pertaining to career technical education and the background development of career technical education

**(3) Recommendations addressing issues relating to *CTE teacher preparation program standards* in order to update these standards in line with research and best practices in the CTE field**

- Provide in the standards for a streamlined single comprehensive and integrated program of preparation for CTE candidates
- Provide in the standards for an orientation to all CTE candidates that addresses the essential skills and information needed by a beginning CTE teacher in the first weeks of teaching
- Require that an approved program sponsor recommend the individual for the credential
- Provide in the standards that programs be required to provide training for all CTE teachers in how to teach English learners and how to address the needs of students with identified special needs
- Provide in the standards for supervision and a support model similar to BTSA to provide mentoring and feedback to CTE beginning teachers

As a result of the panel’s recommendations, a proposed set of new credential requirements for both the preliminary and the clear credential would be established. The following table illustrates these proposed new credential requirements (left column) and provides for comparison of the current requirements credential requirements (right column).

**Table 1**

<b>Preliminary Credential Requirements</b>	
<b>Proposed</b>	<b>Current</b>
1. Preliminary credential valid for 3 years	1. Preliminary credential valid for 5 years
2. High school diploma/equivalent	2. High school diploma/equivalent
3. Recommendation from an approved program sponsor	3. Recommendation from an approved program sponsor or the employer
4. Three years work experience or equivalent, including certifications or licenses	4. Five years work experience or equivalent
5. One year recent work experience in the last three years or two years work experience in the last five years	5. One year recent work experience in the last three years
6. Advanced Industry Certification would qualify as work experience, thereby reducing the number of years required	6. Advanced Industry Certification does not qualify as work experience
7. <i>Moved to a clear credential requirement</i>	7. College-level course work or examination on U.S. Constitution

**Clear Credential Requirements**

<b>Proposed</b>	<b>Current</b>
1. Possession of a valid preliminary credential	1. Possession of a valid preliminary credential
2. Completion of the preliminary CTE teacher preparation program (9 semester units or 135 hours). Program includes instruction in SDAIE	2. Completion of Level I and II teacher preparation (a total of 180 hours or 12 semester units)
3. Health education would continue to be a part of the clear credential program	3. One unit of health education
4. College-level course work or examination on U.S. Constitution	4. <i>Formerly a preliminary credential requirement</i>
5. Four successful teaching terms <b>or</b> two successful terms of teaching and an advanced preparation program or equivalent professional development	5. Level II Preparation: Four successful teaching terms and a total of 180 hours or 12 semester units (see above) is the only option allowable to earn the clear credential
6. Expand the options for completing the Clear Credential preparation to include National Board Certification, district sponsored teacher development programs, induction, or documentation of successful teaching	

## **Summary of the Impact of the CTE Panel's Recommendations**

1. CTE teacher supply would potentially be increased by reducing the number of years of work experience, expanding the requirement for recent work experience, accepting advanced certifications for work experience, expanding options for completing credential requirements, and moving the U.S. Constitution requirement to the clear credential.
2. CTE credential requirements would be streamlined by consolidating the part-time and full-time credential into one credential that may be used for full- or part-time assignment, consolidating major teacher competencies into a unitary program of preparation, and limiting recommendations for the credential to only the approved teacher preparation program.
3. The quality CTE teacher preparation would be improved by providing an early orientation to new teachers in the first weeks of teaching, increasing preparation to teach English learners and students with disabilities, and providing supervision and support during initial teacher preparation.

## **Ongoing Activities to Implement the CTE Recommendations**

Some of the recommendations of the CTE Advisory Panel would require changes to the CTE credential requirements, others would require changes to the Commission's CTE standards, and still others would require changes to existing statutes before they could be implemented. Based on its recommendations for changes to the credential, the panel drafted a set of program standards consistent with the recommendations. The draft program standards have been presented to the Commission and the California education community for comment. The responses of stakeholders will be considered and appropriate revisions will be made to the draft standards. The panel plans to bring a final draft of standards and program requirements to the Commission in June 2008 for adoption.

Legislation has recently been introduced that would implement several of the advisory panel's recommendations. Senate Bill 1104 (Scott), as currently proposed, would do the following:

- Reduce the term of the CTE Preliminary Credential from 5 to 3 years
- Reduce the years of experience required for the CTE Preliminary Credential from 5 to 3 years.
- Allow National Board for Professional Teaching Standards (NBPTS) certification to meet requirements for the clear credential
- Move the U.S. Constitution requirement from the Preliminary Credential to the Clear Credential, thus eliminating a barrier for beginning CTE teachers.

# **Report to the Governor and the Legislature on the Study of Career Technical Education Certification**

## **Part I. Background**

Over the last several years a number of trends and events have affected Career Technical Education (CTE). In 2006 the National Center for Education Statistics (NCES) released its most current data on high school dropouts, which show a strong correlation between poverty and dropout rates. These data suggest that public education should prepare students not only with functional literacy in core academic areas but also in skills and abilities for the workplace if the cycle of poverty is to be interrupted. Also in 2006, Congress and President Bush reauthorized the Carl Perkins Career and Technical Educational Improvement Act, which provides increased focus on the academic achievement of career and technical education students, strengthened connections between secondary and postsecondary education, and improved state and local accountability with nearly \$1.3 billion in federal support for career and technical education school programs in all 50 states through 2012 (<http://www.ed.gov/about/offices/list/ovae/pi/reauth/perkins.html>). In 2007 the National Center on Education and the Economy appointed a new Commission on the Skills of the American Workforce, whose published report, *Tough Choices or Tough Times* includes a set of recommendations for meeting workforce and related education demands anticipated over the next fifteen years.

Meanwhile, the California Department of Education (CDE) began drafting the first California CTE academic content standards in 2005 by reviewing the federally-identified industry sectors. Fifteen out of sixteen sectors were deemed applicable to career technical education for public schools. The CTE Model Curriculum Standards are organized by these 15 sectors (<http://www.cde.ca.gov/be/st/ss/index.asp>). These standards are aligned to appropriate student academic content for these sectors. The CDE officially renamed vocational education “Career and Technical Education” in 2005 when it adopted CTE academic content standards.

Career Technical Education has also remained a concern of California’s Governor and Legislature. In November 2006, California voters passed a bond that provides \$500 million in grants for CTE facilities at K-12 schools as part of the Strategic Growth Plan. In 2007, the Governor requested that the Little Hoover Commission study CTE in California. Recently, the Governor, policymakers and educators have begun efforts to refocus the state on workforce preparation needs and career technical education. The Governor and the legislature approved a budget for 2007-2008 that provides \$52 million to enhance CTE curriculum, streamline teacher recruitment and training, maximize facilities funds, and integrate academics into CTE courses (<http://gov.ca.gov/index.php?/fact-sheet/5616/>). Specifically, part of the increased funding is designated to expand professional development opportunities for educators by giving teachers and counselors more access to CTE instruction and career counseling training.

## **Part II. Review of the CTE Credential Structure and Requirements**

In December 2006, the Commission on Teacher Credentialing (Commission) directed staff to begin reviewing and updating the current credential structure and requirements of the Designated Subjects Career Technical Education Credentials. This review was directed for two key reasons:

1. These credential requirements had not been reviewed since 1993, and it is the Commission's policy to periodically review and update credential requirements.
2. The first standards for career technical education had been adopted by the State Board of Education in May 2005. The Commission is mandated by SB 2042 to align teacher preparation standards to K-12 content standards.

As is Commission practice, an expert advisory panel was recruited to help conduct this important work. In January 2007 Commission staff recruited panel members by announcing the nomination process on the Commission's web site and by direct email to all California Regional Occupational Centers and Programs (ROCPs) and teacher preparation programs. Professional organizations were invited by formal letter from Executive Director Dale Janssen to appoint representatives to the panel. Both employers of CTE teachers and educators of CTE teachers were selected. The Association of California School Administrators, California School Boards Association, California Teachers Association, and California County Superintendents Educational Services Association nominated representatives to the panel from their organizations. The California Federation of Teachers was invited to nominate a representative but declined. The California Department of Education provided a liaison. Representatives of the California State University and the University of California systems subsequently joined the panel. The panel included representatives from the stakeholder groups identified above and were selected to represent as evenly as possible all regions of California, gender and ethnicity diversity, and both the K-12 and higher education segments. The list of members of the panel is included as Appendix A.

In advance of the meeting the panel was sent a collection of resource materials that represented the most current research and academic analysis of CTE. These included publications and reports from ERIC, professional journals, the National Center for Education Statistics, the U.S. Department of Education, the U.S. Department of Labor, and research organizations and institutions. Panel members were instructed to review the current materials prior to meeting to establish a common information base for their discussions. The panel considered the state and national picture in its deliberations. The data presented in the sections below also formed a basis for the panel's foundational knowledge of CTE current policy and practice.

### **CTE Courses in the Public Schools**

Over the last five years the number of CTE courses offered in California's public schools has decreased from 32,456 to 24,580, a reduction of over 24%. Predictably, the number of CTE teachers employed has also dropped from 5,865 to 4,883, a decrease of almost 18%. However, the average CTE class size has increased slightly from 22 to 25 students, suggesting a continuing demand for these courses. The data in Table 2 below show the reduction in CTE courses and teachers over the last five years across all CTE areas. Appendix C provides CTE course data organized by type of course. Only in the Health Careers area was there a notable increase in the numbers of classes, total enrollment and teachers, with some of these more than doubling. It appears that given limited funds, schools are focusing their resources on the needs of the highest demand career fields.

**Table 2**

<b>Statewide CTE Students, Classes and Teacher Totals 2001-2007</b>				
<b>School Year</b>	<b>Course Enrollment</b>	<b># of Classes</b>	<b># of Teachers</b>	<b>Avg. Class Size</b>
2006-2007	610,856	24,580	4,883	25
2005-2006	633,972	24,370	5,046	25
2004-2005	674,568	25,410	5,207	26
2003-2004	690,979	26,291	5,419	25
2002-2003	742,103	32,456	5,865	22
2001-2002	743,268	29,768	5,837	24

The number of new CTE credentials issued over the last five years has dropped even more dramatically, which suggests a hypothesis that schools may be rehiring experienced CTE teachers rather than recruiting new CTE teachers. Renewal of Clear CTE Credentials has increased (as shown in Table 3), which supports this assumption. First time CTE credentials issued annually have dropped the most, with the overall reduction of over 60% fewer first-time CTE credentials issued in 2006 than in 2001. With the increased funding resources provided in the 2007-08 state budget, California can anticipate a higher demand for teachers to staff the expected increased numbers of CTE classes.

**Table 3**

<b>Vocational Education Credentials Recommended 2000-01 through 2005-06*</b>							
<b>Part-time Credentials</b>	<b>Document</b>	<b>2000-01</b>	<b>2001-02</b>	<b>2002-03</b>	<b>2003-04</b>	<b>2004-05</b>	<b>2005-06</b>
	Initial	1135	1080	854	806	538	352
	Renewal	159	226	225	265	296	292
	<b>Total</b>	<b>1294</b>	<b>1306</b>	<b>1079</b>	<b>1071</b>	<b>834</b>	<b>644</b>
<b>Full-time Credentials</b>	<b>Document</b>	<b>2000-01</b>	<b>2001-02</b>	<b>2002-03</b>	<b>2003-04</b>	<b>2004-05</b>	<b>2005-06</b>
	Initial	2624	2799	2511	2131	1772	1051
	Renewal	1204	1502	1573	1582	1574	1408
	<b>Total</b>	<b>3828</b>	<b>4301</b>	<b>4084</b>	<b>3713</b>	<b>3346</b>	<b>2459</b>

\* Source: Commission on Teacher Credentialing

### **CTE Credential Requirements Prior to the Implementation of SB 52**

Currently, the Designated Subjects Career Technical Education Teaching Credential authorizes the holder to teach the “designated” career technical subjects named on the credential in grades 12 and below and in courses organized primarily for adults which are part of a program of technical, trade or vocational education. The subject that the individual is authorized to teach is determined by the candidate’s five years of work experience in an occupation, such as computer programming, welding or landscaping, rather than based on an academic program of study. Work experience meets one requirement for the preliminary credential. The preliminary full-time credential is valid for a five-year period, during which the holder is required to complete an approved two-level professional preparation program. The first level of preparation introduces the topics of lesson planning, assessment and classroom safety, and must be completed within

the first two years of teaching. The second level of the two-level preparation program involves advanced coursework on teaching methodology, including topics such as lesson planning, assessment, and classroom safety. This coursework completes the preparation for a full-time clear credential over the next three years.

Teachers who hold single subject credentials in agriculture, business, health, home economics and industrial and technology education are authorized to teach vocational classes in and related to these subject matter areas, without any additional authorization, in both regular education classes and career technical education classes. For all other single and multiple subject teaching credentials, teachers must meet the related work experience requirement to teach CTE courses and apply for that credential. However, no additional teacher education preparation is required for these teachers.

In addition to the requirements listed above, the current credential structure differentiates between individuals who teach career technical courses on a part-time and those who teach on a full-time basis. SB 52 required the Commission to “convene an advisory committee to review credential requirements for designated subjects career technical education teaching credentials and make recommendations for consolidating the requirements for full-time and part-time service. It is the intent of the Legislature that the Commission focus on streamlining the credential structure by identifying the essential skills needed for successful career technical instruction in order to increase as quickly as possible the number of persons who possess a career technical education teaching credential.” The part-time credential requires half as much teacher preparation as the full-time credential. Over the last five years the number of part-time credentials issued annually has dropped by half while full-time credentials have dropped by one-third (see Table 3).

### **The Work of the CTE Advisory Panel**

The CTE advisory panel began to meet in March 2007 and met seven times for two days each, approximately monthly through September 2007. The task kept in mind by the panel was to focus on needed changes to the CTE credential structure itself as well as to preparation for the credential that would potentially increase CTE teacher supply, streamline CTE credential requirements, and improve the quality of preparation to teach California students. With these goals in mind, the panel began by reviewing the data presented above concerning CTE courses, teachers and enrollments, the findings of the 2001 Vocational Education Credential Task Force, relevant legislation and a current field survey of ROCPS. This field survey showed that new CTE teachers needed additional support. The employers responding to the survey also predominantly agreed that three years of work experience was sufficient for CTE teachers and that recent work experience was important. Classroom management strategies, English learners methods, and mentoring were identified as the most critical improvements needed in teacher preparation.

The discussions of the panel were framed by several areas of concern regarding the CTE credential structure that have arisen over the past decade. These areas of concern are:

1. ***Early teacher orientation for CTE teachers.*** Currently, CTE teachers enter the classroom and work with students prior to participating in any teacher preparation. For all other credential areas, an individual who holds a preliminary credential from the Commission has already completed a specified amount of teacher preparation, including

supervised student teaching, before receiving the credential and beginning a first teaching job. An individual is awarded a preliminary CTE credential, however, based on work experience *prior* to participating in teacher preparation. CTE teachers are required to participate in teacher preparation after receiving the preliminary credential and during their first two years of teaching. Should an individual be required to complete an early teacher orientation when awarded a preliminary CTE credential?

2. ***Period of validity of the preliminary CTE credential.*** The preliminary CTE credential is valid for five years. The employer is responsible for ensuring that the preliminary CTE credential holder completes at least the first level of preparation by the end of the second year of teaching. There are instances in which the teacher is allowed to continue teaching past the second year without completing the required initial teacher preparation. According to ROCPs and credential programs, some candidates do not complete their credential preparation requirements until their fifth year of teaching on the preliminary credential. Should the first CTE credential be valid for a shorter period to ensure that individuals complete the teacher preparation sooner?
3. ***Number of years of work experience required for the CTE credential.*** Workplace data show that the average number of years that an individual holds a particular job has gradually been reduced due to faster growth and decline cycles in the workplace. Several decades ago, the average length of time an American held a specific job for was seven years. In the 1980's this length of tenure in a position was reduced to five years. Today, the average length of tenure in a specific job is three years. Workers must develop job skills much more quickly in the current highly competitive job market. Should the years of work experience required to obtain a CTE credential be reduced in a corresponding manner?
4. ***Allowable work experience for a CTE credential candidate.*** The Commission is authorized by the Education Code to define "work experience" and has identified numerous options for an individual to use. Such options include full- or part-time, paid or unpaid occupational experience. Occupational education and teaching may count for up to one year of work experience. Industry certifications are not among the present options allowed as work experience. If an individual holds advanced level industry certification of skills, should that count toward the experience requirement? Should occupational education and teaching be allowed to count for more of the experience?

Based on all of the information provided to panel members in advance of the meeting, and based on the fundamental issues listed above that were raised with the panel as a discussion framework, the panel at its first meeting raised a number of its own questions regarding possible changes to the credential. These questions were:

- What should be the length of the preliminary credential?
- What should be the number of years of required work experience?
- How recent should that work experience be?
- How should work experience be defined? Should it include education, teaching, volunteerism, licensure and certifications?
- What certifications should be recognized, and how much credit toward work experience should be credited?

- How should regular education teachers become qualified to teach career technical education?
- What additional preparation or experiences should regular education teachers have to teach CTE?
- How should candidates' progress toward full certification be monitored?
- Who should be responsible for monitoring candidates?
- At what point in the preparation cycle is knowledge of U.S. Constitution important?
- At what point are health knowledge and CPR certification critical for CTE teachers?
- What additional components of preparation are important?
- What is the appropriate sequence and scope for preparation?
- How early must preparation begin for the good of students in the classroom?
- What is the relationship between full- or part-time teaching assignments and the credential?
- How should candidates be assessed for teaching competence?
- How do the present authorizations relate to the fifteen sectors adopted by the State Board?
- How should authorizations be added to insure competence across different sectors?

The panel members discussed each of these questions as a means of defining the components of their work. Though they had initial responses on which they generally agreed, those responses continued to evolve as additional information and interaction developed at subsequent meetings. The first meeting concluded with a brief discussion of additional information needed by the panel, such as how other states qualify CTE teachers, how education administration programs address CTE, guest speakers who could inform the panel, and liaisons with the Special Education Panel reviewing requirements for Special Education certification and the Staff Development Panel (SB 1292 Guidelines for Staff Development for Teaching English Learners for CTE teachers). Several panel members agreed to review the current Education Code and Title 5 Regulations related to CTE to identify which (if any) might need to be changed. The panel was visited by a CTC legislative consultant to help them see the relationships between the present laws and their charge. One panel member agreed to find information about other states' requirements for CTE teachers.

One panel member and a member of the Commission staff conducted a study of other states' requirements for CTE teachers and found wide differences among states. At the extreme end some states require advanced degrees and up to five years of induction. The following table summarizes the requirements of seven states studied. Their requirements ranged from no education to bachelor's degrees, from two to six years of work experience, and from twelve semester hours to nine semester units of teacher preparation.

**Table 4**

<b>State</b>	<b>Education</b>	<b>Work Experience</b>	<b>Teacher Preparation</b>
Connecticut	High school diploma <sup>1</sup>	8 years related work experience	6 units in professional education
Florida	Bachelor's degree with certification	6 years work experience and assessment of competencies	9 semester units of professional vocational education

<b>State</b>	<b>Education</b>	<b>Work Experience</b>	<b>Teacher Preparation</b>
Illinois	No stated minimum	2000 hours of related work experience	60 semester hours of teacher preparation
New York	High school diploma	2-4 years of work experience and certification for some areas	30 semester hours of college study and Certification Exam
Nevada	High School diploma or equivalence	5 years verifiable related work experience and certification for some areas	12 semester hours in secondary occupational courses and Praxis I
Texas	High school diploma or equivalent <sup>2</sup>	5 years full-time wage-earning experience within the past 8 years and occupational licensure/certification	Completion of an approved educator preparation program and Texas Exam for Trade and Industry Education
Washington	Appropriate degree in the content area	2 years of paid occupational experience in the last 6 years	Complete an approved “Business and Industry Program” prior to getting the credential

<sup>1</sup>*Agriculture, marketing, health occupations and cooperative work education also require a bachelor’s degree.*

<sup>2</sup>*Other vocational areas require a bachelor’s degree but do not require work experience; however, health requires both a degree and work experience.*

Subsequent to this study, a national study of CTE requirements among the various states was conducted. The report is available from the National Research Center for Career and Technical Education ([www.nccte.org](http://www.nccte.org).)

As the panel’s deliberations advanced over the following months, they began to agree that however broadly “work experience” might be defined, a minimum of one year of on-the-job experience was necessary due to the nature of CTE, which includes more than specific job skills. Other responsibilities of CTE teachers include interpersonal skills such as working with others, career advancement, common expectations for conduct, attitudes, modes of communication, and appearance in the workplace, many of which can only be learned at the work site. Panel members also came to agree that while some occupational skills change little over time, others typically change dramatically, rapidly, and constantly. The more technical the occupation is the more the latter is true. This factor makes it necessary for teachers to have some experience actually working in their chosen field.

## ***Challenges Identified by the Panel Regarding its Work***

### ***A. Challenges relating to streamlining CTE teacher preparation***

The panel dealt with the tension between making recommendations that would increase teacher supply and those that would improve the quality of CTE teachers by requiring more experience and/or training. Teacher supply is complicated by several factors, the most important of which is that when occupational skills are in high demand in the workplace, workers can demand higher salaries for their skills. This makes it difficult for schools to entice skilled workers into teaching where salaries may not be competitive with their occupational field. A further burden is placed on potential CTE teachers to pay for teacher education and spend valuable time away from their industry jobs while completing teacher preparation. However, research has repeatedly indicated that students' learning is strongly related to the quality of their teachers; teacher quality is in turn strongly related to teacher preparation and experience. In addition, teacher retention and success have been proven to increase with providing sustained teacher support. The panel's challenge was to design a new model for CTE teachers that would reduce barriers to recruitment while at the same time increasing the potential for teacher and student success.

### ***B. Challenges relating to student diversity***

A further challenge identified by the panel was the increased responsibilities placed on CTE teachers as a result of the Williams lawsuit and the reauthorization of the federal Individuals with Disabilities Education Act (IDEA). The reality of CTE classrooms is that a higher percentage of CTE students are English learners and student with disabilities than are found in regular classrooms. More than most other types of teacher, CTE teachers need to be equipped with the special methods required to educate these students. The panel sought innovative ways of improving these specialized areas of teacher preparation without negatively impacting teacher recruitment. The panel agreed that contextualizing English learner and Special Education teaching methods with other preparation components, such as curriculum planning and classroom management, would not only extend preparation but also reduce its demands on the teacher. Representatives from Public Advocates, a group which was party to the Williams lawsuit, attended most of the panel meetings and concurred that such a model was well-supported by research.

### ***C. Challenges relating to providing early preparation to CTE teachers***

One final issue was paramount to the panel: providing early preparation to CTE teachers. Many new CTE teachers are lost to the teaching profession because they enter the classroom unprepared to teach. In addition, students struggle to learn with teachers who are ill-equipped to help them. However, requiring pre-service preparation of all CTE teachers would be likely to discourage many from entering teaching. Presently, most, but not all, employers provide some type of orientation for new teachers, but this training is not consistent nor comprehensive among employers. After much discussion about what is needed most immediately by teachers and how that might be provided, the panel agreed that an early orientation during the first weeks of teaching could be sufficient if it was supplemented by supervision and peer teacher support at the school site. Such a model could reduce barriers to teaching and increase the quality of teaching.

Several guests contributed to the panel deliberations on these challenges. Jason Spencer, a representative from Senator Torlakson's office, elicited the panel's input about the issues of CTE teacher supply and quality and resources. Panel members identified critical concerns as program

resources at the teacher preparation and school level, partnership incentives, CAP restrictions, and alignment of high school graduation requirements with workforce needs. The panel was interested in additional pathways to increase articulation between school and work by providing opportunities for industry trainers to teach students directly. Models of distance learning and team teaching partnerships were two of the avenues discussed that are presently open. However, the panel felt that more opportunities should be explored with incentives provided for businesses to participate.

Another guest interacting with the panel was Dr. Beverly Young, representing the CSU Chancellor's Office. Dr. Young expressed the CSU's commitment to prepare CTE teachers, the panel members shared their views about how administrator preparation programs at the CSU could also help to increase local school CTE programs by addressing the financial and legal aspects of CTE for K-12 education. The panel also worked with the SB 1292 task force on developing English learner guidelines for CTE teachers and with those working on Special Education to draft a program standard for students with disabilities who are preparing for the work world.

The panel discussions on how multiple and single subject teachers might be recruited more expediently for CTE classes focused primarily on three concerns about how these teachers are certified to teach CTE: (1) the teachers' undeniable value as fully prepared teachers should not negate the need for them to have some occupational experience, (2) these teachers should have some formal orientation such as a CTE foundations course, and (3) these teachers should have documented successful teaching experiences in regular education classes. However, reducing barriers for these teachers could potentially provide a valuable source of experienced teachers for CTE classes.

The panel studied the results of intern and induction programs as models for increasing teacher recruitment, retention, and success. These programs have proven track records, but they also have categorical funding which CTE teachers traditionally have not had available. A few programs have linked their CTE teacher candidates with BTSA programs with great success. Though the panel supports a CTE model with increased supervision and support, the members are concerned about the abilities of programs to provide these services in addition to the preparation components of teacher education. Some panel members felt that employers would be willing to provide assistance with early orientation and supervision as part of their ongoing administrative activities, but support from fellow teachers would be difficult to maintain without the ability to offer stipends to those teachers for their time. Funding for preparation programs could become a pivotal issue.

### **Part III. The Commission's Recommendations**

Following is a list of the Commission's recommendations which were informed by the panel's deliberations. Each recommendation is accompanied by a brief rationale.

**1. Reduce the length of the term of the Preliminary CTE credential from five years to three years.**

*Rationale:* Individuals teaching vocational education courses would be required to complete teacher preparation earlier in their teaching career, thus reducing the length of time a CTE teacher is in the classroom without completing teacher preparation.

**2. Reduce the required number of years of work experience from five years to three years.**

*Rationale:* To align with the trend toward shorter tenure per job in the workplace, reducing the number of years of work experience required to qualify for a CTE credential would enable more individuals to meet the work experience requirement, thereby potentially facilitating teacher recruitment.

**3. Add advanced industry certifications to the list of activities that qualify as work experience.**

*Rationale:* By adding advanced industry certifications to the work experience options, additional individuals with expertise would be able to meet the work experience requirement, thereby increasing the pool of qualified candidates. For example, an automobile mechanic with two years of experience and an industry certification would meet the experience requirement. It would be necessary to compile a list of certifications that could count towards the experience requirement.

**4. Require an early teaching orientation for all new CTE teachers.**

*Rationale:* Requiring an early teaching orientation as part of enrollment in a CTE program would increase teacher effectiveness by providing new CTE teachers with basic training in classroom management, lesson planning and grading, safety procedures, and special needs of students. This early orientation would be an introduction to teacher preparation and would give CTE teachers basic "just-in-time" information that would support them in the first months of teaching. The remainder of the preparation program should still be completed over the three years of the credential.

**5. Require training for all CTE teachers in how to teach English learners.**

*Rationale:* All teachers of English learner students must have appropriate English learner training (EC 44001, 44253.1, 448300(a)). Teaching English learners was addressed minimally in the current Career Technical Education program standards under the topic of "special populations." However, this type of teacher preparation should be increased and improved by updating the manner in which it is defined in the program and requiring programs to integrate it throughout the CTE teacher preparation program. The revised program standards address the knowledge and skills a teacher must have to work with English learners through Specially Designed Academic Instruction in English (SDAIE).

**6. An approved program sponsor should recommend the individual for the credential.**

*Rationale:* Under the present requirements an individual may be recommended by the employer or the approved program sponsor. If an employer recommends an individual for a CTE credential, it is possible that the preparation program may not be notified and the individual may not begin the preparation program when he or she begins teaching. In a case such as this, teacher preparation does not begin at the optimum time. If the prospective CTE teacher must apply for the credential through the approved CTE program, enrollment and participation in preparation activities could be ensured in a more timely manner.

**7. The requirement for recency of work experience should be expanded to one year in the last three years or two years in the last five years.**

*Rationale:* The present requirement for recent work experience is one year in the last three years. The advisory panel believes this requirement to be too restrictive and may, in fact, eliminate some highly qualified people from teaching CTE courses if they haven't worked in their occupation in the last three years. Even though some technical aspects of work may change over a few years, the basic principles and applications generally remain the same in many occupations. Teacher recruitment could be increased by widening the recency requirement to include a greater number of years. [The panel recommended recent work experience of one year within the past five years or two years of work experience within the past ten years. Commission discussion indicated that the Commission was concerned about the recency of work experience over ten years and so the Commission's recommendation differs from the CTE Panel.]

**8. The U.S. Constitution requirement should be moved to a Clear credential requirement.**

*Rationale:* Presently, taking a college-level course or passing an examination about the U.S. Constitution is a prerequisite for the preliminary credential. This may be an obstacle for CTE teachers, many of whom have not attended college. Recruitment could be increased by delaying the U.S. Constitution requirement until the individual is in process of clearing the credential.

**9. The options for completing the advanced CTE preparation should be expanded to include professional development options that are equal to or greater than the current CTE advanced preparation.**

*Rationale:* Full-time CTE teachers currently must complete a two-level program of preparation which totals 12 semester units or 180 hours. However, more new CTE teachers are now eligible or required to participate in district-sponsored teacher development programs, induction or mentoring programs which may go beyond the current Level II preparation. The panel has recommended to the Commission that a candidate should be able to clear the credential through employer documented successful teaching or by earning National Board Certification or other advanced professional development. Allowing for additional options for teacher development could encourage new CTE teachers to participate more in the teacher development community and advance their teaching skills in a variety of practical and professionally recognized ways.

- 10. Teaching experience with a valid multiple or single subject teaching credential should count for up to one year of work experience even if it is not directly related to the CTE credential area. The individual should still be required to complete preparation in CTE foundations.**

*Rationale:* Presently multiple and single subject teachers may teach related CTE courses only if they hold a credential in agriculture, business, health, home economics, or industrial and technology education. Other single subject (and multiple subject) credentialed teachers may teach CTE courses only if they have five years of work experience in the CTE subject, but they do not have to complete a CTE teacher preparation program. The CTE advisory panel suggests that teaching experience, even if it is not related to the CTE subject, is invaluable to the success of CTE teachers. If holding any multiple or single subject credential counted for one year of work experience, more multiple and single subject teachers might be recruited for CTE courses. Under the above recommendation the individual would then only need documented successful teaching, two years of work experience in the CTE subject, and one course in CTE foundations to be eligible for the preliminary CTE credential.

- 11. Consider a new pathway for industry experts who may want to teach part-time for a brief period only since their skills are in high demand in the workplace.**

*Rationale:* The panel discussed considering a new pathway for industry experts who may want to teach part-time for a brief period only since their skills are in high demand in the workplace. These individuals often participate in education through partnerships with ROCP, including ones built around online and distance learning models for students. The panel believes that there is a need for a business/industry partnership certificate (BIPC), limited to one issuance of short duration and one minimal preparation requirement: early orientation.

This new credential pathway would encourage partnership projects with businesses which usually provide the materials and equipment for such projects. Businesses would gain the benefit of being directly involved with training young workers to their precise needs. Participating teacher/partners should be currently certified in their field and have recent experience. They should be closely supervised and mentored by the employing school district or county office of education, which would also have the responsibility to insure that instruction in the partnership project meets the standards. Teaching service and preparation under such an authorization should count toward the regular CTE credential if the teacher/partner wants to continue in teaching as a career. Additional discussion needs to take place to implement this recommendation.

#### **Part IV. CTE Teacher Preparation Program Standards**

##### **Overview of the Current CTE Teacher Preparation Program Standards**

The current standards for Career Technical Education teacher preparation programs were adopted by the Commission in 1993. Nineteen education agencies operate approved CTE programs across California, including the California State University, the University of California, private and independent institutions of higher education, county offices of education, and school districts. As part of the Commission's mandate under SB 52, the CTE advisory panel has updated and proposed revisions to the current standards with the goal of improving the quality of CTE teacher preparation and increasing CTE teacher supply. The panel designed the

new draft standards to be aligned with the CTE K-12 standards adopted by the State Board of Education in 2005.

### **The Draft CTE Preparation Program Standards**

The draft CTE preparation program standards are organized in a manner consistent with other California educator preparation standards for ease of implementation since many sponsors of CTE programs also sponsor other types of educator preparation programs. The draft CTE standards are comprised of the Common Standards and the Program Standards, including statements of required candidate competencies. Each of the standards includes elements that help to define the standard and guide programs in both organizing the program and preparing a response to the standards. Some major changes to the CTE program framework as prescribed within the standards are being proposed in terms of structure and substance. These major changes and the supporting rationales are described below.

#### **A. Comprehensive and integrated CTE program design**

Current CTE preparation programs consist of two levels which can be thought of as introductory and advanced. Each level requires candidates to complete 6 semester units or 90 hours of professional preparation. For streamlining, the new standards are designed for a single comprehensive and integrated program of preparation of 9 semester units or 135 hours of professional preparation for a single credential that authorizes both part-time and full-time service. The program would have to be completed in three years or less, after which time candidates would be eligible for a clear credential by having completed four documented successful teaching terms, the advanced level of preparation offered by the program, or a variety of other professionally recognized activities.

#### **B. Early orientation for program candidates**

Since CTE teachers may enter the classroom prior to completing a teacher preparation program, the panel believes that it is not only reasonable but necessary to provide every new CTE teacher with an orientation within the first few months of teaching. Though many districts provide an orientation for new teachers, there is inconsistency in the content of such orientations, and the orientations are designed for teachers who have completed preparation programs. The CTE advisory panel believes that, by requiring approved preparation programs to provide an orientation that addresses the essential skills and information needed by a beginning teacher, more consistency and comprehensiveness could be realized across all CTE programs. In addition, the CTE advisory panel believes that if approved programs were responsible for orienting CTE teachers and providing basic skills and knowledge as these individuals begin teaching, the programs would be working with candidates from the point of hire, ensuring early advising, support, and supervision. This would likely improve teacher quality and retention.

#### **C. Professional program responsible for candidate recommendation for a credential**

In the past, approved CTE preparation programs were not necessarily responsible for recommending candidates for the initial CTE credential. Employers could recommend candidates for the initial credential without the candidate enrolling in a teacher preparation program. A significant shift in the draft standards is to move the responsibility to the approved preparation program to recommend candidates for the initial credential. This

responsibility ensures that all candidates will be enrolled in preparation before they begin to teach and receive early orientation, support and supervision from the program that has recommended them for the preliminary credential.

#### **D. Teaching English Learners (EL)**

Before the passage of SB 1292, CTE teachers were prevented from obtaining preparation to teach English learners if they did not hold a bachelor's degree. Now CTE teachers can participate in staff development programs for teaching EL students. The draft standards include a separate and explicit standard aligned to the SB 1292 guidelines for teacher competencies in teaching EL students. One critical component of this standard is that these competencies, including SDAIE strategies, must be integrated throughout the preparation program so that they are contextualized for application by the candidates. Therefore, all newly prepared CTE teachers will receive the knowledge and skills to work with English learners as part of their teacher preparation program.

#### **E. Teaching students with special needs**

The current CTE program standards address "special populations" in a general manner. A large number of CTE students have special needs. Some CTE courses are designed as opportunities for special needs students to learn practical life and job skills. These courses are known as "transition" and "workability" courses. The responsibility that CTE teachers have for special education students suggests the need for ensuring knowledge about best practices for teaching students with special needs. Therefore, the panel felt that it was essential that the proposed standards include a standard designed to address the knowledge and skills needed for working with students with special needs.

#### **F. Beginning teacher support and advisement**

Historically, no formal supervision or support has been required for new CTE teachers. The draft standards define and require a support model consistent with both student teaching supervision and new teacher support to ensure that candidates have multiple opportunities for critical feedback on their practice and mentoring from a skilled colleague. Formally instituting support and supervision during the preparation program will enable candidates to increase the quality of their teaching knowledge within the classroom context. This approach should help with retention of these teachers and improve the quality of their teaching. This support model has proven effective for other new teachers, and it is imperative that CTE teachers receive similar support and supervision. Additional discussion needs to take place to implement this recommendation.

## Appendix A

### Career Technical Education Advisory Panel Members

Kit Alvarez	Colton-Redlands-Yucaipa Regional Occupational Program
Paul Bott	CSU Long Beach (retired)
George Brunelle	Sacramento City Unified School District
Marianne Cartan	Association of California School Administrators
Dale Countryman	West Side Regional Occupational Program
Priscilla Cox	California School Boards Association
Irene Fuji	Eden Area Regional Occupational Program
Rick Graham	California Teachers Association
Dennis Guido	California Department of Education
Dennis Ivey	California County Superintendents Educational Services Association
Darlene Le Fort	Coastline Regional Occupational Program
Knute Momberg	Stockton Unified School District
Nona Olsen	Mendocino County Office of Education
Matthew Saldana	Long Beach Unified School District
Joseph Scarcella	CSU San Bernardino
Diana Schneider	Orange County Office of Education/Central County Regional Occupational Program
Valerie Vuicich	Fresno County Office of Education
Paul Watters	Butte County Office of Education Regional Occupational Center and Program
Glenn Casey	California Polytechnic University, San Luis Obispo
Lynn Martindale	University of California, Davis
Susan Yamate	San Diego County Office of Education

# **Appendix B**

## **Career Technical Education Credential Industry Sectors Guide**

### **Agriculture and Natural Resources**

- Agriculture business management and marketing
- Agriculture mechanics
- Animal care
- Animal production
- Crop Production
- Floriculture and Floristry
- Forestry, natural resources and rural recreation
- Landscaping
- Ornamental nursery operation

### **Arts, Media, and Entertainment**

- Commercial Art
- Commercial Photography
- Journalism occupations
- Multimedia production
- Performing arts occupations
- Stage technology
- Theatrical occupations
- Technical Illustration

### **Building Trades and Construction**

- Airframe and powerplant mechanics
- Boat building
- Carpentry
- Concrete placing and finishing
- Construction equipment operation
- Construction inspection
- Drafting occupations
- Drywall installation
- Electrician
- Fire sprinkler installation
- Floor covering installation
- Furniture making, finishing and refinishing
- General contracting
- Glazing
- Heating, air conditioning, and ventilation installation and service
- Lathing
- Masonry
- Millwork and cabinet making
- Painting-construction
- Pipefitting and steamfitting
- Plastering
- Plumbing
- Refrigeration installation and maintenance
- Residential and commercial repair and remodeling
- Roofing
- Sheet metal fabrication
- Structural and reinforcement ironwork
- Tile setting
- Upholstering
- Waterfront Manufacturing
- Welding

### **Education, Child Development, and Family Services**

- Child care
- Elderly care services (non-medical)
- Family and human service occupations
- Interpreter for the deaf
- Teaching/teacher aide

### **Energy and Utilities**

- Airframe and powerplant mechanics
- Control system maintenance and repair
- Electrical power distribution
- Electrician
- Electronics assembly
- Electronic consumer products service
- Energy, environment and resource management
- Hybrid microelectronics
- Hydroelectric plant operations
- Industrial electronics
- Marine power plant maintenance and repair
- Water treatment

### **Engineering and Design**

- Biomechanical equipment technology
- Drafting occupations
- Communications electronics
- Computer maintenance and repair
- Electronics assembly
- Engineering occupations
- Industrial electronics
- Industrial maintenance
- Surveying
- Hazardous materials occupations
- Hybrid microelectronics
- Robotics

### **Fashion and Interior Design**

- Clothing, alteration and repair
- Fabric maintenance services
- Fashion design
- Fashion manufacturing (factory and custom)
- Fashion merchandising
- Interior design
- Jewelry design, fabrication, and repair
- Textile design
- Textile production and fabrication
- Upholstering

### **Finance and Business**

- Accounting occupations
- Banking
- Business Management
- Customer Service Representative
- Financial management and services
- Income tax preparation
- Insurance occupations
- Legal office occupations
- Office occupations
- Personnel administration occupations
- Secretarial/stenography occupations
- Small business ownership and/or management

### **Health Science and Medical Technology**

- Athletic Trainer
- Biomedical equipment technology
- Dental services
- Dietetics and nutrition services
- Health care biotechnology services
- Health care diagnostic services
- Health care information services
- Health care preventive services
- Health care supportive services
- Medical office services
- Nursing services
- Optical goods work
- Therapeutic services

### **Hospitality, Tourism, and Recreation**

- Commercial diving
- Custodial Services
- Event and conference planning
- Food and beverage production and preparation
- Food and beverage services
- Hotel and lodging occupations
- Interior Maintenance (residential and commercial)
- Pool and spa service
- Recreation
- Amusement and Theme Park Occupations
- Transportation occupations
- Travel services

### **Information Technology**

- Computer Applications
- Computer Programming
- Computer Software Operation
- Computer systems operation
- Information processing
- Information systems management
- Telecommunications

### **Manufacturing and Product Development**

- Computer-assisted manufacturing
- Electronic publishing
- Foundry work
- Industrial ceramics manufacturing
- Instrument repair
- Machine tool operation and machine shop
- Major appliance repair
- Metal fabrication
- Office machine repair
- Plastics and composites manufacturing occupations
- Printing and graphics occupations
- Product development, testing and demonstration
- Small appliance repair
- Technical illustration
- Tool and die making
- Warehousing
- Welding
- Waterfront manufacturing

### **Marketing, Sales, and Service**

- Customer Service Representative
- Insurance occupations
- International Trade
- Marketing
- Real Estate
- Retail occupations
- Small business ownership and /or management

### **Public Service**

- Animal control
- Barbering
- Cosmetology
- Custodial services
- Court reporting
- Electric motor repair
- Major appliance repair
- Office machine repair
- Small appliance repair
- Fire control and safety
- Fire fighting
- Fire sprinkler installation
- Hazardous materials occupations
- Instrument repair
- Law enforcement occupations
- Legal office occupations
- Locksmithing and safe repair
- Manicuring and pedicuring
- Motor sweeper operator
- Shoe repair
- Structural pest control
- Personnel administration occupation
- Protective and security services

### **Transportation**

- Airframe and powerplant mechanics
- Automobile Detailing
- Automotive Body Repair and Refinishing
- Automotive Brake Installation and Repair
- Automotive Electrical Systems Service and Repair
- Automotive Heating and Air-Conditioning Service
- Automotive Mechanics
- Automotive parts counterperson
- Automotive Suspension and Steering Repair
- Automotive Transmission and Transaxle Service and Repair
- Avionics
- Bicycle repair
- Diesel equipment mechanics
- Electric Motor Repair
- Engine Performance Technician
- Heavy equipment maintenance and repair
- Industrial maintenance
- Motorcycle service and repair
- Railroad operations
- Small engine service and repair
- Tow truck operation
- Transportation occupations, travel services
- Truck and bus driving
- Warehousing

## Appendix C

### CTE Enrollment, Courses and Teachers 2001-2007\*

Year	Total Enrollment	# of Classes	# FTE Teachers	Avg. Class Size
<b>Agriculture Education</b>				
2006-2007	54,213	2,343	473.62	23.1
2005-2006	56,685	2,312	482.77	24.2
2004-2005	58,393	2,312	477.62	24.7
2003-2004	57,039	2,284	468.19	24.0
2002-2003	56,906	2,497	481.58	21.8
2001-2002	58,062	2,490	493.68	22.7
<b>Business- Marketing</b>				
2006-2007	9,464	441	91.58	21.5
2005-2006	9,247	383	83.65	24.0
2004-2005	9,325	380	87.91	24.0
2003-2004	9,634	398	89.7	23.8
2002-2003	9,824	461	90.66	20.7
2001-2002	8,802	363	79.59	23.5
<b>Business Office</b>				
2006-2007	126,751	4,838	950.09	26.1
2005-2006	128,579	4,770	983.92	26.5
2004-2005	148,403	5,424	1,106.67	26.6
2003-2004	151,001	5,879	1,202.07	25.2
2002-2003	171,516	8,137	1,406.33	20.4
2001-2002	169,071	6,993	1,336.39	23.5
<b>Consumer-Home Economics</b>				
2006-2007	109,682	4,082	783.47	26.7
2005-2006	118,415	4,293	854.36	27.2
2004-2005	123,095	4,349	863.7	27.8
2003-2004	126,867	4,485	899.74	27.5
2002-2003	137,126	5,180	953.02	25.5
2001-2002	140,462	5,157	994.29	26.3
<b>Health Careers</b>				
2006-2007	12,953	501	108.37	25.9
2005-2006	11,980	413	92.89	28.2
2004-2005	12,716	451	90.17	27.5
2003-2004	11,148	410	90.2	26.5
2002-2003	6,877	373	51.25	17.3
2001-2002	5,797	232	52.91	23.3

Year	Total Enrollment	# of Classes	# FTE Teachers	Avg. Class Size
<b>Home Economic Related Occupations</b>				
2006-2007	35,166	1,496	304.74	23.5
2005-2006	33,357	1,370	289.64	24.0
2004-2005	32,381	1,289	270.15	24.6
2003-2004	30,950	1,221	255.23	24.3
2002-2003	33,230	1,478	267.77	21.7
2001-2002	32,863	1,338	271.05	23.5
<b>Industrial Technology Education</b>				
2006-2007	52,067	2,199	435.95	23.6
2005-2006	54,166	2,189	456.67	24.3
2004-2005	57,021	2,238	459.35	24.8
2003-2004	59,654	2,322	482.1	24.8
2002-2003	61,000	2,532	481.55	23.3
2001-2002	60,994	2,516	505.7	23.5
<b>Electronics Technology</b>				
2006-2007	9,740	433	90.45	22.5
2005-2006	10,254	435	90.91	23.6
2004-2005	11,264	460	95.53	24.3
2003-2004	13,766	553	117.32	24.2
2002-2003	16,194	685	132.37	23.0
2001-2002	14,701	623	127.22	23.4
<b>Electronics Manufacturing</b>				
2006-2007	13,804	586	121.74	23.3
2005-2006	16,092	624	130.45	25.7
2004-2005	16,363	652	136.95	24.8
2003-2004	17,800	673	144.8	25.1
2002-2003	17,878	772	140.88	22.6
2001-2002	18,007	744	147.28	24.2
<b>Explorations in Industrial Technology</b>				
2006-2007	47,503	1,770	328.52	26.4
2005-2006	51,585	1,921	362.08	26.3
2004-2005	53,741	1,978	370.43	26.8
2003-2004	55,473	2,013	380.08	26.8
2002-2003	60,246	2,248	416.62	26.1
2001-2002	63,045	2,364	443.19	26.2
<b>Power, Energy, Transportation</b>				
2006-2007	28,728	1,175	243.28	24.4
2005-2006	32,447	1,241	270.33	25.9
2004-2005	34,341	1,282	276.02	26.5
2003-2004	38,076	1,402	296.05	26.4
2002-2003	40,030	1,641	301.39	23.7
2001-2002	37,536	1,509	301.99	24.2

<b>Year</b>	<b>Total Enrollment</b>	<b># of Classes</b>	<b># FTE Teachers</b>	<b>Avg. Class Size</b>
<b>Visual Communications, Drafting</b>				
2006-2007	27,509	1,116	211.84	24.6
2005-2006	29,131	1,167	233.61	24.7
2004-2005	31,249	1,211	244.77	25.4
2003-2004	33,389	1,277	262.1	25.7
2002-2003	34,788	1,538	266.33	22.3
2001-2002	36,288	1,501	285.77	23.4
<b>Visual Communications, Graphics</b>				
2006-2007	34,729	1,329	273.16	26.1
2005-2006	33,734	1,222	259.01	27.0
2004-2005	35,620	1,282	263.09	27.1
2003-2004	34,791	1,261	266.31	27.1
2002-2003	35,946	1,457	271.12	24.1
2001-2002	34,043	1,291	261.27	25.5
<b>Diversified Occupations</b>				
2006-2007	5,952	393	77.3	15.0
2005-2006	5,000	269	63.44	17.0
2004-2005	5,404	284	65.11	17.3
2003-2004	4,632	252	58.2	18.1
2002-2003	6,197	384	70.32	15.8
2001-2002	5,139	247	59.49	20.2
<b>Applied Technology</b>				
2006-2007	14,972	545	106.63	27.3
2005-2006	14,288	501	103.12	27.9
2004-2005	15,592	549	115.37	27.3
2003-2004	15,486	552	116.67	27.4
2002-2003	18,555	706	133.74	25.6
2001-2002	21,363	746	149.35	27.0

\*Source: California Department of Education