Commission on Teacher Credentialing

Agenda Item 6B

Proposed Modifications to the Supplementary Authorization in Computer Concepts and Applications

February 2015

Overview of Teachers Authorized for Computer Science Education

Prior to 2001, a local employing agency could assign any credentialed teacher to provide instruction in a computer science education course. Regulations were adopted to limit these assignments to the following credential holders:

1. Single Subject Credential
   - Math, Business or Industrial Technology Education
   - Specific Supplementary Authorization in Computer Concepts and Applications (CCA) for grades K-12
2. Multiple Subject Credential
   - Introductory Supplementary Authorization in CCA (grades 9 & below)
3. Designated Subjects Career Technical Education (CTE) Credential in Information Technology (CTE Courses)

Supplementary Authorizations

- Added to Multiple & Single Subject Teaching Credentials to authorize departmentalized instruction
- Supplementary Authorizations added to Single Subject (SS) since 1979 and Multiple Subject (MS) since 1981
- Supplementary Authorizations in Computer Concepts and Applications (CCA) developed in regulations in 1987 (effective 1989)
- Authorization scope and required units are specified in California Education Code section 44256 but provides the Commission authority to develop regulations for evidence of additional competence in a subject

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Current Content for Supplementary Authorizations in CCA

Authorization	Unit Requirements	Content Areas of Study
Introductory Supplementary Authorization -Computer Concepts and Applications (Only for Elementary Credentials grades 9 and below)	20 Semester Units or 10 Semester Units if Upper Division or Graduate level	• Requires coursework covering each content area: • software evaluation and selection • hardware operation and functions • classroom uses of computers
Specific Subject Supplementary Authorization – Computer Concepts and Applications (Only for Secondary Credentials-all grade levels)	20 Semester Units or 10 Semester Units if Upper Division or Graduate level	• Specific Subject Supplementary Authorizations have no required content areas • All coursework from academic department of subject category or for CCA also within Education Department

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Proposed Content for Supplementary Authorization in Computer Science

Authorization	Unit Requirements	Content Areas of Study
Introductory Supplementary Authorization - Computer Science (Only for Elementary Credentials grades 9 and below)	20 Semester Units or 10 Semester Units of Upper Division or Graduate Level	- computer programming - data structures and algorithms - computer hardware and organization - software design - impacts of computing (e.g., social, ethical, legal)
Specific Subject Supplementary Authorization – Computer Science (Only for Secondary Credentials-all grade levels)	20 Semester Units or 10 Semester Units of Upper Division or Graduate Level	- computer programming - data structures and algorithms - computer hardware and organization - software design - impacts of computing (e.g., social, ethical, legal)

Modifications to CCA

- Changes focus on content preparation from how to use computer as a tool; evaluate educational software; and business productivity software applications to a broader and deeper preparation representative of all K-12 computer science courses
- Changes to the Content Areas of Study required for the authorization serves as a basis for increasing the capacity of teachers prepared to provide instruction in full range of K-12 Computer Science courses
- Name of Supplementary Authorization is proposed to be changed from CCA to “Computer Science” to reflect change in preparation focus

Supplementary & Subject Matter Authorizations

Data as of July 2014 –

- 86,820 Multiple and Single Subject teaching credentials include 1 or more Supplementary or Subject Matter Authorization (valid and non-expired)
- 128,878 Supplementary and Subject Matter Authorizations currently held (valid and non-expired)
- 1,406 Introductory Supplementary Authorizations in CCA
- 2,044 Specific Supplementary Authorizations in CCA
- 59% CCA on Elementary Credentials for grades 9 and below and 41% on Secondary Credentials for all grade levels

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Computer Science Bills Chaptered in 2014

SB 1200 (Padilla) Public postsecondary education: academic standards: computer science

- Requires the Trustees of the CSU, and requests the Regents of the UC, to develop guidelines for high school CS courses to be approved for purposes of recognition for admission to the CSU and UC
- Requires the Trustees and requests the Regents ensure that computer science courses that satisfy the math subject area requirements for admission build upon fundamental math content provided in courses that align with the academic content standards developed by the Academic Content Standards Commission

AB 1539 (Hagman) Content standards: computer science

- Requires the Instructional Quality Commission (IQC) to consider developing and recommending to the state board computer science content standards for K-12
- Requires IQC to consider the following:: existing computer science content standards including, but not limited to, the national K-12 computer science content standards developed by the Computer Science Teachers Association, and content standards that include, but are not limited to, standards for teaching coding

AB 1764 (Olsen) School curriculum: mathematics: computer science

- Authorizes governing board of a school district that requires more than 2 courses in math for graduation to award a pupil up to one math course credit for a "Category C" approved computer science (CS) course
- Encourages school district governing boards to ensure that any CS course awarded math credit builds upon fundamental mathematics content
- Encourages school district governing boards to support schools in submitting any CS course used to fulfill the math subject area requirement to the UC for certification and addition to the school's approved "A-G" course list