Program Standard 11: Using Technology in the Classroom

Through planned prerequisites and/or professional preparation, the teacher preparation program ensures the following:

Candidates are familiar with basic principles of operation of computer hardware and software, and implements basic troubleshooting techniques for computer systems and related peripheral devices before accessing the appropriate avenue of technical support.

Candidates use appropriate technology to facilitate the teaching and learning process. Candidates are able to evaluate and select a wide array of technologies for relevance, effectiveness, and alignment with state-adopted academic content standards, and the value they add to student learning.

Candidates demonstrate knowledge and understanding of the legal and ethical issues related to the use of technology, including copyright issues and issues of privacy, security, safety, and acceptable use. Candidates demonstrate knowledge and understanding of the appropriate use of computer-based technology for information collection, analysis, and management in the instructional setting.

Candidates demonstrate competence in the use of electronic research tools and the ability to assess the authenticity, reliability, and bias of the data gathered. Candidates analyze best practices and research on the use of technology to deliver lessons that enhance student learning.

Candidates integrate technology-related tools into the educational experience and provide equitable access to available resources to all students. Candidates encourage the use of technology with students in their research, learning activities, and presentations.

Candidates use computer applications to manipulate and analyze data as a tool for assessing student learning, informing instruction, managing records, and providing feedback to students and their parents.

Candidates learn to use a variety of technologies to collaborate and communicate with students, colleagues, school support personnel, and families to provide the full range of learners with equitable access to all school and community resources.

Using Technology in the Classroom: Basic Principles of Computer Hardware & Software

The online component of the CalStateTEACH curriculum develops the technological proficiency of candidates through a combination of face-to-face instruction, print and electronic instructional materials, practical applications, and extensive engagement with an online learning environment. Use of a wide variety of computer hardware and software is integral to the program and required for success. In addition to computers and printers, candidates routinely use scanners, digital...
cameras, and telecommunications equipment to document academic progress, student work, and classroom activities.

Interaction using email and collaborative tools including threaded discussions is fundamental within the CalStateTEACH program. Candidates are provided face-to-face training in these skills during a one-day orientation conducted prior to beginning the program. Proficiency is developed through the continued use of email for communication and collaboration with peers and faculty, and through electronic submission of assignments. Academic feedback is also provided electronically. In addition to email communication, candidates participate in structured and unstructured threaded-discussions throughout the course of the program. In total, candidates are required to participate actively in a minimum of 15 curriculum related discussions. In addition, the structure of the program requires that candidates become proficient with a variety of online tools to create lesson plans and instructional units, develop electronic portfolios, and compile and distribute shared curriculum resource collections.

Throughout the program CalStateTEACH candidates have multiple opportunities to use appropriate criteria to evaluate various computer technologies, hardware, software and other use of technology in the classroom. These guidelines are also provided to students in the Classroom Technology Guide.

All lesson planning in CalStateTEACH requires that candidates cite the appropriate state academic content standards, and candidates are expected to choose relevant software to support learning. Faculty review candidate work for alignment of software and content standards.

**Using Technology in the Classroom: Technology to Facilitate Teaching & Learning**

Candidate proficiency with technology to support their own learning is a foundation for their use of technology as a teaching and learning tool in the multiple subject classroom. Throughout the CalStateTEACH program, candidates are required to employ technology in a variety of instructional settings. They evaluate a variety of educational technologies, and select software aligned with content standards to enhance student learning. Proficiency in each of these areas is achieved through activities that provide instruction, or require research, application, and reflection.

Candidates are also provided with a CalStateTEACH Technology Guide and a Quick Start Guide. The Technology Guide provides information about integrating technology into the instructional program. The Quick Start Guide provides basic computer troubleshooting information and step-by-step instructions on how to use the course website, LPA, Unit Builder, Work Folio, Portfolio Builder and Resource Folio. Candidates use these tools from the first week of the program to the last. Additional troubleshooting tips are provided in the Classroom Technology Guide. The CalStateTEACH online help desk provides one-on-one support to candidates for troubleshooting technology-related issues not addressed in these resources.

For example, in Activity 13.01 Technology and Mathematics, candidates view Internet-based resources to develop instructional strategies to incorporate appropriate use of technology into mathematics instruction. Later in Activity 20.03, Using Technology to Increase Caregiver
Communication, candidates prepare a plan for effective communication with caregivers using technology to enhance classroom management. In more general terms, candidates are required to consider the use of technology for each lesson plan they develop and to offer a rationale for their choice of tool(s) or their decision not to employ technology.

Candidates are required to develop lesson plans in all content areas and include resources for integrating technology. Throughout the modules, candidates are expected to find appropriate resources to support their instruction, discover resources that their students can use directly, and learn web and school-based management tools, especially as they pertain to assessment and the resulting instructional refinement. Candidates use web-based resources to gain access to the California Frameworks (Module 4), to research strategies for teaching particular content or to achieve particular outcomes (Module 5), search the web to find technologies that promote learning in specific content areas (Modules 5 and 10), modify instruction for students with special needs (13), and investigate technology for communication to caregivers as a means to enhance classroom management (Module 20). Module 22 requires candidates to include a virtual field trip as a means to engaging students with a source of content.

In Module 1, Candidates create a classroom website to communicate their classroom philosophy, curriculum and classroom management plan to parents and students. Through this exercise, candidates utilize web site construction software. In Module 20, candidates use movie making software to create a video demonstrating their understanding of the Acting-Out Cycle. Because they cannot include student’s identifying characteristics, many candidates use animation software to depict the cycle. Candidates are encouraged to use these skills and software to have their students create videos teaching concepts to other students.

Each of the subject-specific all day seminars, language acquisition, reading, science, mathematics, visual and performing arts, and physical education, models the use of a variety of technologies for teaching and learning. Presenters address the use of technology in subject-specific pedagogy, and candidates leave the seminars with technology resources for application in the classroom.

Using Technology in the Classroom: Legal & Ethical Issues

Candidates have many opportunities to review best practices in the use of technology. Legal and ethical issues have a primary place in the instruction in educational technology. At the very beginning, candidates are cautioned about copyright issues and issues of privacy, security, safety and acceptable use. Activity 1.01 asks candidates to analyze what type of information is appropriate for a classroom website in contrast to that which would be included in a personal social network.

Candidates are explicitly instructed to never post videos or children from public school classrooms on any internet site. The issues of privacy and safety take a primary position in our discussions about technology in schools. In addition, our students are informed about the typical acceptable use policies adopted by most school districts. In field experience, they are required to obtain and study the acceptable use policy of their placement school.
CalStateTEACH has a netiquette policy that it shares with candidates at program orientations. The program expects that candidates will follow these practices and will not tolerate any infraction. In addition, candidates learn about cyber bulling and how they can create a safe environment for their students.

In Activity 22.01: Preparing for Technology Integration, candidates explore such issues as, equity, gender, and the analysis of race and the digital divide and access the International Society for Technology in Education to guide them in their professional activities.

**Using Technology in the Classroom: Electronic Research Tools**

By becoming aware of the various research studies, as well as participating in online symposia, CalStateTEACH candidates have opportunities to demonstrate competence in using electronic research tools, as well as assessing the integrity of electronic data. In Module 4: Content Area Knowledge and Special Needs, candidates utilize Web-based resources to describe key ideas and major themes in the California Frameworks, including the elements of a balanced, comprehensive approach to the four core content areas: reading/language arts, mathematics, history-social science and science. They access and utilize the National Education Technology Standards project.

In Activity 13.02: Accommodations for Students with Learning Disabilities, they access Internet resources and use research studies to identify technological applications that could support students with learning disabilities. In Activity 15.05 Planning Adaptations for Students with Special Needs, candidates read Lewis and Doorlag for research-based examples of using technology to support gifted and talented students. Candidates also read a list of Internet-based professional associations with research articles and additional resources. In Activity 22.04: The Virtual Field Trip, candidates use electronic resource tools to develop a virtual field trip as part of the integrated unit.

**Using Technology in the Classroom: Computer Applications for Data Analysis**

The primary means of communicating within the CalStateTEACH program is via email. At the core of the program is the use of computer applications in completing program assignments and managing data. Candidate use of the Learning Management System of the program requires that they learn not only to upload their work and retrieve feedback but that they learn to track the status of their assignments, assessments, and other obligations in the program. These skills are required in order to function within CalStateTEACH.

Candidates must also learn to apply their technology skills and knowledge in the multiple subject classroom setting. At the core of the program is the use of computer applications in completing program assignments and managing data. Candidate use of the Learning Management System of the program requires that they learn not only to upload their work and retrieve feedback but that they learn to track the status of their assignments, assessments, and other obligations in the program. These skills are required in order to function within CalStateTEACH.

Candidates learn to apply their technology skills and knowledge in the multiple subject classroom setting. Two specific examples follow. The instructional resources on the course
website include an “Assessment Toolbox” which provides students with tools. In Activity 7.02: the Principles of Assessment, candidates The Assessment Toolbox. In Activity 20.03: Using Technology to Increase Caregiver Communication, candidates prepare a plan for effective communication with caregivers using technology to enhance classroom management.

Using Technology in the Classroom: Technology to Communicate & Collaborate

The primary means of communicating within the CalStateTEACH program is via email. At the core of the program is the use of computer applications in completing program assignments and managing data. Candidate use of the Learning Management System of the program requires that they learn not only to upload their work and retrieve feedback but that they learn to track the status of their assignments, assessments, and other obligations in the program. These skills are required in order to function within CalStateTEACH.

All CalStateTEACH candidates are assigned an email address through the course website and regularly communicate with each other and their faculty using email. Notices are posted on the course website, but are also distributed to participants via email. Having an email address and being available by email is a basic program entrance requirement. All lesson and unit planning in CalStateTEACH is completed via electronic means. Assignments, lesson and unit plans are also electronically shared with the faculty for review and final submission.

Candidates are required to post their responses for online discussion activities and to respond to other candidates’ posting as well. Candidates also have access to informal state-wide, regional and cohort discussion groups. Examples of candidate communication in the program are found in Modules 2, 7, 12, and 19. The final requirement of the program—the development of an electronic portfolio (Module 25) for the purpose of communicating one’s professional competencies to an external audience—is the culminating example of the pervasiveness of electronic communication and the consequent development of such skills in the CalStateTEACH program.