50015.6 INSTRUCTIONAL TECHNOLOGY
The program requires the study of current, appropriate instructional technologies. The program uses varied assessments of candidates’ understanding and abilities to apply that knowledge.

1. Candidates have the opportunity to address and meet this standard in the following courses:

All Elementary Education candidates must currently meet a computer requirement. This can be met through one of two ways: Taking either Computer Science 101 and 101T or T&L 390: Technology for Teachers. After reviewing assessment data in Spring 2007, the Elementary Education faculty determined that Computer Science 101 was not meeting the needs of elementary education candidates, and beginning Fall 2008, Technology for Teachers will be a required course under a new course number and catalog description. Additionally, students are exposed to instructional technology through the four TEAM (Teacher Education through Applied Methods) courses and the field experience component associated with these courses.

**101. Introduction to Computers.** 3 credits. Recommended corequisite: CSci 101T. An overview of the fundamental concepts and applications of computer science. Topics include data storage, hardware, operating systems, and programming principles. [LINK To Syllabus]

**101T. Software Applications Tutorial.** 1 credit. Recommended corequisite: CSci 101. An introductory tutorial course to complement CSci 101. Activities will include hands-on experience with operating systems and application software (including word processors, spreadsheets, and databases). [LINK To Syllabus]

**390. Special Topics: Technology for Teachers.** 2 credits. [LINK To Syllabus]

**T&L 410. Teaching Reading and Writing in the Elementary School.** 3 credits. In this course students learn strategic-based approaches to teaching and assessing reading and writing in the elementary school classroom with an emphasis on planning instruction that is child-centered, process-oriented and literature-based. [LINK To Syllabus]

**T&L 430 Social Studies in the Elementary School.** 3 credits. To understand and analyze the different modes of teaching social studies, to gain the competencies necessary for organizing a unit in the social studies, to gain an understanding of the values and multiple perspectives inherent within the various teaching strategies, to develop a preferred perspective on the ideal nature of Social Studies education. [LINK To Syllabus]

**T&L 440 Math in the Elementary School.** 3 credits. TEAM Math is the required mathematics methods course for all undergraduate elementary education majors. Students explore how to facilitate the learning of mathematics in a constructivist environment through the use of investigations, manipulatives, technology, and holistic forms of assessment. Current trends in teaching mathematics are emphasized, with
particular attention to documents created by the National Council of Teachers of Mathematics. [LINK To Syllabus]

**T&L 470 Science in the Elementary School.** 3 credits. A survey of teaching strategies, materials, and resources appropriate for promoting science inquiry in elementary classrooms. [LINK To Syllabus]

2. Critical Tasks/Praxis Tests/Dispositions and other measures that assess the extent to which candidates have met this standard:

   - **T&L 440 Authentic Math Assignment**
     Task Description: Teacher Candidates work with partners to choose a topic, occurrence, problem or situation that people routinely encounter in their day-to-day lives. The partners are to create a technology-enhanced presentation to show to their peers what authentic mathematics is found in that topic, occurrence, problem, or situation, and how lessons might be conducted in an elementary school setting to teach those specific mathematical concepts with authentic problem solving scenarios based on their authentic math topic. Students may choose any type of technology to present their authentic math. Students routinely use Power Point, iMovie, eZedia, digital pictures, and other multimedia methods. The object of the assignment is two-fold. First, teacher candidates are looking for math content in the world around them, thus giving them the opportunity to think about problem solving in a different context than the old “word problems.” Second, teacher candidates are exposed to multiple instructional technologies and taught to use them in ways that enhance the teaching of a content area.

   - **Technology Field Experience Lesson Plan**
     Task Description: Teacher Candidates spend approximately 60 hours in a field placement associated with the four TEAM courses. During that placement they are required to teach one “Technology-Supported Authentic Learning Task” (T-SALT). Basically they are to teach a lesson in one of the content areas (science, social studies, language arts, or mathematics) that is supported by technology in some way. The technology is to help students *learn the content.*

3. Analysis of assessment results demonstrate that (narrative about extent to which students meet standards goes here)

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<thead>
<tr>
<th>Table 1: Authentic Math Assignment</th>
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<td>Does not meet expectations</td>
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<td>Fall 2006 (N = 48)</td>
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In the case of the field experience lesson plans, all teacher candidates met the expectation in that they taught a content area lesson that was supported with technology. The effectiveness of those lessons varied, however, and the teacher candidates “Reflections” after the teaching of the lesson shows this. In one case (“Genre Study”), the teacher candidate reflected that the technology used did not really enhance student learning. Students focused so much on the technology that it took away from the students learning regarding genres. In another case (“Landforms of the World”), the use of the technology was not beneficial to the students. The teacher candidate used the technology to create a class book that students could look at later. The technology did not enhance their learning. These two examples are counterbalanced by two more where the technology actually made student learning more productive. In “Washington, DC”, the students used Apple Works Draw and the internet to create web maps. The creation of the web map actually helped students internalize the information. The second sample, “Science Lesson Plan – Water Cycle”, the students used KidPix to create a pictorial representation of their understanding of the water cycle. In both cases, student understanding of the concepts was enhanced by the use of the technology.

In the case of the Authentic Math Assignment, teacher candidates fulfilled or exceeded the expectations of the instructor. The presentations were mathematically rich, appropriate for the grade levels indicated by the teacher candidates, and the technology used for the presentations enhanced the content presented and demonstrated the teacher candidates’ abilities to use current technology in appropriate ways. The difference between those that merely met the expectations (“A Shopping Trip” and “Cookies”) and those that exceeded expectations (“Wake Up” and “Authentic Math: Sioux Hockey Fans”) is the level of mathematics, the depth of the teacher candidates exploration into the topic, and the overall quality of the technological presentation.
4. Work Samples

Lesson Plans
LPSample1    LPSample2    LPSample3

Authentic math assignments: Link to four power point presentations.
AuthenticMath1    AuthenticMath2    AuthenticMath3
Authentic math assessment tool

Technology Field Experience Lesson Plan Assignment. Link to Pdf