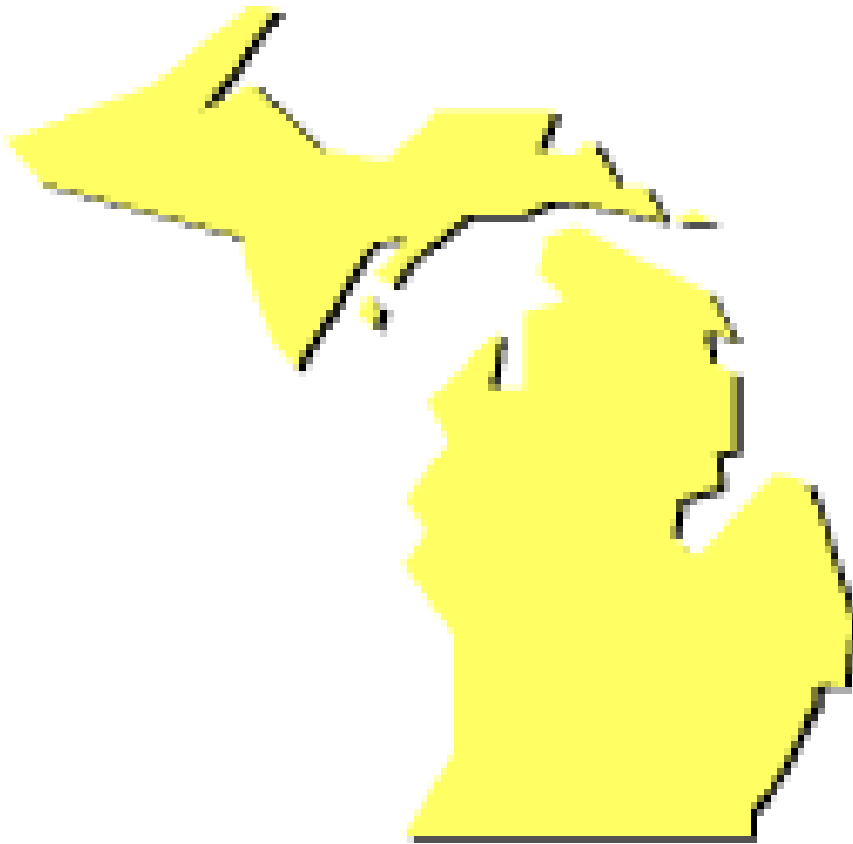# Standards for the Preparation of Teachers

Educational Technology

Adopted by the Michigan State Board of Education
May 13, 2008

Standards for the Preparation of Teachers in Educational Technology (NP Endorsement)

Preface

<u>Development of the Standards</u>

During 2000-2001, a referent group of professional educators (the "Referent Group") developed a proposal to create a new educational technology endorsement and to adopt a set of standards for the preparation of teachers in this area. The Referent Group proposed the adoption of a new endorsement for teachers, in alignment with the International Society for Technology in Education (ISTE) standards. To provide information on the proposal and gather feedback, a session was held by the Referent Group at the Michigan Association for Computer-Related Technology Users in Learning (MACUL) conference in March 2001. The proposal was also forwarded to selected state organizations, all Michigan teacher preparation institutions, and a random sample of intermediate and local school districts for review and comment. These efforts resulted in the submission of comments and recommendations, and the standards were revised accordingly.

Concurrently, the State Board of Education's (SBE) Task Force report, "Embracing the Information Age", also addressed the need for teacher preparation and professional development in connection with Information Age learning practices. In its report to the SBE, presented in November 2001, the Task Force recommended that teacher preparation and development ensure that all teachers learn how to utilize Information Age tools and learning techniques and processes. In December 2001 the SBE, upon the recommendation of the Task Force, approved among other things, the following policy:

> All educators and administrators will be prepared to use Information Age tools and learning techniques and processes.

Both the Referent Group and the Task Force developed very specific proposals regarding standards for teachers. The Task Force recommended a revised teacher preparation standard (i.e., a new "Seventh Standard" for the Entry-Level Standards for Michigan Teachers), in alignment with technology literacy standards developed by ISTE for all teachers in 2000. As noted above, the Referent Group proposed an endorsement for teachers in alignment with ISTE standards for educational technology endorsements and the proposed revised Seventh Standard. Following the adoption of the SBE's policy, the revised standards prepared by the Referent Group were reviewed by Michigan Department of Education (MDE) staff, the SBE's Task Force, and the Professional Standards Commission for Teachers (PSCT). After extensive review, the standards were modified to reflect the expectations and commitment adopted by the SBE pursuant to its policies.

On April 20, 2006 Governor Jennifer Granholm signed into law a comprehensive set of high school graduation requirements called the Michigan Merit Curriculum. This law is a result of a partnership among Governor Granholm, the SBE, the State Superintendent of Public Instruction, the Legislature, and numerous education associations. The new law requires students to have an online course or learning experience.

In response to the Michigan Merit Curriculum legislation several proposals surfaced regarding teacher preparation. It was proposed that the following standards be added to the Entry-Level Standards for Michigan Teachers (impacts all teacher Candidates):

- Successfully complete and reflect upon collaborative online learning experiences;

- Demonstrate an understanding of and the ability to create an online learning experience and demonstrate continued growth in technology operations and concepts, including strategies for teaching and learning in an online environment.

  It was further proposed that the Educational Technology endorsement be strengthened to include expectations for knowledge and skills related to online teaching and learning, at an advanced level, consistent with the other requirements for this endorsement for previously certified teachers. Thus Standards 4, 5, and 6, and proficiency levels for each standard have been added as program requirements.

Purpose of Standards

This document begins with educational technology literacy standards to ensure that experienced teachers, who complete preparation programs in this area, also meet the requirements of the proposed updated Seventh Standard. The remainder of the preparation standards ensures that Candidates possess advanced-level knowledge and skills in order to effectively utilize Information Age practices to enhance their own teaching and the learning of students. Teachers holding this endorsement may have opportunities to mentor other teachers and provide leadership by example in the schools where they are employed.

This endorsement is not intended to relieve the responsibilities of all Michigan educators to be prepared to use Information Age tools, learning techniques, and processes. To the contrary, the expectations set forth in the SBE's policy that all educators and administrators be prepared to use Information Age tools, learning techniques, and processes remain strong. The purpose of the endorsement is to encourage the development of Information Age learning practices and techniques throughout the learning communities of Michigan by recognizing the accomplishments of educators who gain expertise in such skills, creating new avenues and incentives for the use of Information Age practices in professional

development, and creating a growing cadre of highly skilled professionals with such knowledge and skills.

Approval of Programs

A higher education institution that wishes to provide an advanced-level program in educational technology is required to submit an application for program approval that demonstrates how the standards are met throughout the proposed curriculum. Following initial approval, the teacher preparation program will be subject to periodic reviews of outcome data to ensure that the program has been effective in preparing teachers to better utilize technology in their instruction and for student learning. Procedures for program review are established by the Superintendent of Public Instruction.

Institutions with previously approved educational technology programs will need to resubmit their programs for approval to ensure that these revised standards are met in their program. At the same time they will need to adjust semester hour requirements to meet the state minimum of 20 semester hours. The new credit hour requirement was established in the Revised Administrative Rules Governing the Certification of Michigan Teachers which were effective November 20, 2006.

1.0 Foundations

Professional studies culminating in the educational technology endorsement prepare Candidates to use computers and related information technologies in educational settings in an exemplary way in alignment with the "Seventh Standard" of the Entry-Level Standards for Michigan Teachers. All Candidates seeking this endorsement would have opportunities to meet these educational technology foundation standards and to surpass the basic requirements of the "Seventh Standard."

1.1 Educational Technology Operations and Concepts

Candidates will demonstrate a sound understanding of educational technology operations and concepts.

Performance Indicators – Candidates Will:
1.1.1 Demonstrate knowledge, skills, and understanding of concepts related to learning and educational technology as required by the International Society for Technology in Education (ISTE) National Educational Technology Standards for Students (and reflected in the Michigan Curriculum Framework).
1.1.2 Demonstrate continual growth in educational technology knowledge and skills to stay abreast of current and emerging technologies.

1.2 Planning and Designing Learning Environments and Experiences

Candidates plan and design effective learning environments and experiences supported by educational technology.

Performance Indicators - Candidates Will:
1.2.1 Design developmentally appropriate learning opportunities that apply educational technology-enhanced instructional strategies to support the diverse needs of learners.
1.2.2 Apply current research on teaching and learning with educational technology when planning learning environments and experiences.
1.2.3 Identify and locate educational technology resources and evaluate them for accuracy and suitability.
1.2.4 Plan for the management of educational technology resources within the context of learning activities.
1.2.5 Plan strategies to manage student learning in an educational technology-enhanced environment.

1.3 Teaching, Learning, and the Curriculum

In alignment with the Michigan Curriculum Framework, Candidates implement curriculum plans that include methods and strategies for applying educational technology to maximize student learning.

Performance Indicators - Candidates Will:
1.3.1 Use, and foster the use of, educational technology-enhanced experiences to address state content and technology standards set forth in the Michigan Curriculum Framework.
1.3.2 Apply educational technology to develop students' higher order skills, creativity, ability to locate technology resources and evaluate them for accuracy and suitability, including the use of critical thinking and the learning skills set forth in the Michigan Curriculum Framework.
1.3.3 Use educational technology to support learner-centered strategies that address the diverse needs of students, including addressing the individual needs of each student, and fostering collaborative, holistic, and self-directed learning.
1.3.4 Manage student-learning activities in an educational technology-enhanced environment.

1.4   Assessment and Evaluation

Candidates apply educational technology to facilitate a variety of effective assessment and evaluation strategies.

Performance Indicators - Candidates Will:
1.4.1 Apply educational technology in assessing student learning of subject matter using a variety of assessment techniques, including focusing on the assessment of each student.
1.4.2 Use educational technology resources to collect and analyze data, interpret results, and communicate findings to improve instructional practice and maximize student learning, including focusing on the assessment of each student.
1.4.3 Apply multiple methods of evaluation to determine students' appropriate use of educational technology resources for learning, communication, and productivity, including focusing on the assessment of each student.

1.5   Productivity and Professional Practice

Candidates use educational technology to enhance their productivity and professional practice.

Performance Indicators - Candidates Will:
1.5.1 Use educational technology resources to engage in ongoing professional development and lifelong learning.
1.5.2 Continually evaluate and reflect on professional practice to make informed decisions regarding the use of educational technology in support of student learning.
1.5.3 Apply educational technology to increase productivity.
1.5.4 Use educational technology to communicate and collaborate with peers, parents, and the larger community in order to nurture student learning.

1.5.5 Use educational technology to collaborate with other teachers and foster collaboration among other teachers, schools, and districts to share best practices in alignment with the State Board of Education's Policy Framework on Virtual Schools.

1.6   Social, Ethical, Legal, and Human Issues

Candidates understand the social, ethical, legal, and human issues surrounding the use of educational technology in K-12 schools and apply those principles in practice.

Performance Indicators - Candidates Will:
1.6.1 Model and teach legal and ethical practice related to educational technology use.
1.6.2 Apply educational technology resources to enable and empower learners with diverse backgrounds, characteristics, and abilities.
1.6.3 Identify and use educational technology resources that affirm diversity.
1.6.4 Promote safe and healthy use of educational technology resources.
1.6.5 Facilitate equitable access to educational technology resources for all students.

2.0   Specialty Content Preparation for Educational Computing and Educational Technology

Professional studies in educational computing and educational technology prepare Candidates to exhibit leadership in the identification, selection, and management of hardware and software and the uses of computers and related technologies appropriate to the candidate's teaching field(s).

2.1   Social, Ethical, and Human Issues

Candidates will apply concepts and skills in making decisions concerning social, ethical, and human issues related to computing and educational technology.

Performance Indicators - Candidates Will:
2.1.1 Describe the historical development and important trends affecting the evolution of educational technology and its probable future roles in society.
2.1.2 Describe strategies for facilitating consideration of ethical, legal, and human issues involving school purchasing and policy decisions.

2.2   Productivity Tools

Candidates integrate advanced features of educational technology-based productivity tools to support instruction.

Performance Indicators - Candidates Will:
2.2.1 Use advanced features of word processing, desktop publishing, graphics programs, and utilities to develop professional products.
2.2.2 Use spreadsheets for analyzing, organizing, and displaying numeric data graphically.
2.2.3 Design and manipulate databases and generate customized reports.
2.2.4 Use teacher utility and classroom management tools to design solutions for a specific purpose.
2.2.5 Identify, select, and integrate video and digital images in varying formats for use in presentations, publications, and/or other products.
2.2.6 Create multimedia presentations using advanced features of a presentation tool and deliver them using computer projection systems.
2.2.7 Apply specific-purpose electronic devices (such as a graphing calculator, language translator, scientific probe ware, or electronic thesaurus) in appropriate content areas.
2.2.8 Use features of applications that integrate word processing, database, spreadsheet, communication, and other tools.

2.3   Telecommunications and Information Access

Candidates will use telecommunications and information access resources to support instruction.

Performance Indicators - Candidates Will:
2.3.1 Access and use telecommunications tools and resources for information sharing, remote information access and retrieval, and multimedia/hypermedia publishing.
2.3.2 Use electronic mail and web browser applications for communications and for research to support instruction.
2.3.3 Use automated online search tools and intelligent agents to identify and index desired information resources.
2.3.4 Identify and use information access and telecommunication tools to support research and instruction throughout the curriculum.
2.3.5 Use local mass storage devices and media to store and retrieve information and resources.

2.4   Software/Hardware Selection

Candidates will demonstrate knowledge of selection and management of the educational technology infrastructure in a classroom setting. Candidates will identify and implement software in classroom environments. They will investigate issues related to educational technology integration.

Performance Indicators - Candidates Will:

2.4.1 Develop plans to configure computers, educational technology systems, and related peripherals appropriate to the candidate's teaching field(s) in laboratory, classroom cluster, and other instructional arrangements.
2.4.2 Research, evaluate, and develop recommendations for purchasing instructional software to support and enhance the school curriculum.
2.4.3 Research, evaluate, and develop recommendations for purchasing educational technology systems.
2.4.4 Design and recommend procedures for the organization, management, and security of hardware and software.
2.4.5 Identify and describe network software packages used to operate a computer network system.
2.4.6 Configure a computer system and one or more software packages.
2.4.7 Identify and describe software used in classroom settings, including productivity tools, information access/telecommunications tools, multimedia/hypermedia tools, evaluation/portfolio tools, and computer-based instruction.
2.4.8 Describe evaluation criteria for software and identify reliable sources of software evaluations.
2.4.9 Identify and classify adaptive assistive hardware and software for students and teachers with special needs and locate sources to assist in procurement and implementation.

2.5 Research and Theories

Candidates will identify and apply educational and educational technology-related research, the psychology of learning, and instructional design principles in guiding use of computers and educational technology in education.

Performance Indicators – Candidates Will:
2.5.1 Summarize and apply principles and practices of educational research in educational technology.
2.5.2 Summarize major research findings and trends related to the use of educational technology in education to support integration of educational technology in a K-12 environment.
2.5.3 Apply theories of learning, teaching, and instructional design and their relationship to meaningful and appropriate ways of using educational technology in instruction.
2.5.4 Describe social and historical foundations of education and how they relate to the use of educational technology in schools.
2.5.5 Identify research related to human and equity issues concerning the use of computers and related technologies in education.
2.5.6 Conduct research and evaluate online sources of information that support and enhance the curriculum.
2.5.7 Design a research project that includes evaluating the use of a specific educational technology in a K-12 environment.

2.6 Problem Solving, Instructional Design, and Product Development

Candidates will use computers and other technologies in research, problem solving, and product development. Candidates use a variety of media, presentation, and authoring packages; plan and participate in team and collaborative projects that require critical analysis and evaluation; and present products developed. Candidates will evaluate authoring and programming environments for use in the classroom. They will apply instructional design principles to develop, implement, and test interactive multimedia instructional products using authoring environments.

Performance Indicators - Candidates Will:
2.6.1 Identify basic principles of instructional design associated with the development of multimedia and hypermedia learning materials.
2.6.2 Develop simple hypermedia and multimedia products that apply basic instructional design principles.
2.6.3 Select appropriate tools for communicating concepts, conducting research, and solving problems for an intended audience and purpose.
2.6.4 Participate in collaborative projects and team activities.
2.6.5 Identify examples of emerging, authoring, or problem solving environments.
2.6.6 Collaborate in online workgroups to build bodies of knowledge around specific topics.
2.6.7 Use a computer projection device to support and deliver oral presentations.
2.6.8 Design and publish simple online documents that present information and include links to critical resources.
2.6.9 Develop instructional units that involve compiling, organizing, analyzing, and synthesizing of information and use educational technology to support these processes.
2.6.10 Use and apply more than one computer authoring and/or programming environment.
2.6.11 Describe the characteristics and uses of current authoring environments and evaluate their appropriateness for classroom applications.
2.6.12 Describe the characteristics and uses of current programming and scripting environments and evaluate their appropriateness for classroom use.
2.6.13 Apply instructional design principles to the design of screens, text, graphics, audio, and video in instructional products under development.
2.6.14 Describe and practice strategies for testing and evaluating instructional products designed.
2.6.15 Apply instructional design principles to develop substantive interactive multimedia computer-based instructional products.

3.0   Professional Preparation in Educational Computing and Educational Technology

Professional studies in educational computing and educational technology require knowledge about use of computers and related technologies to support teaching and learning. Advanced programs preparing educators for a specialty in educational computing and educational technology require studies of, and experiences with, concepts and skills related to use of educational technology-based systems in K-12 education.

3.1   Instructional Program Development

Candidates will develop curricular plans based on local, state, and national standards for the use of computers and other associated technologies.

Performance Indicators - Candidates Will:
3.1.1 Describe and analyze accepted principles of strategic planning to facilitate curriculum design for teaching with computers and related technologies.
3.1.2 Identify and use national, state, and local guidelines to develop curriculum plans for integrating educational technology in the K-12 environment.
3.1.3 Plan strategies to mentor other educators and demonstrate leadership regarding Information Age learning practices and techniques.

3.2   Teaching Methodology

Candidates will effectively plan, deliver, and assess concepts and skills relevant to educational technology across the curriculum. Candidates will apply effective methods and strategies for teaching the use of educational technology tools.

Performance Indicators - Candidates Will:
3.2.1 Design and practice methods and strategies for teaching concepts and skills related to computers and related technologies including keyboarding.
3.2.2 Design and practice methods and strategies for teaching concepts and skills for applying productivity tools.
3.2.3 Design and practice methods and strategies for teaching concepts and skills for applying information access and delivery tools.
3.2.4 Design and practice methods and strategies for teaching problem solving principles and skills using educational technology resources.
3.2.5 Design and implement integrated educational technology classroom activities that involve teaming and/or small group collaboration.
3.2.6 Identify activities and resources to support regular professional growth related to educational technology.

3.2.7 Identify professional organizations and groups that support the field of educational computing and educational technology.

3.2.8 Design a set of evaluation strategies and methods that will assess the effectiveness of instructional units that integrate computers/educational technology.

3.2.9 Demonstrate methods for teaching hypermedia development, scripting, and/or computer programming in a problem-solving context in K-12 schools.

3.2.10 Demonstrate methods for teaching at least one modern authoring tool to students.

3.2.11 Demonstrate methods for teaching uses of media-based tools, such as television, audio, print media, and graphics.

3.2.12 Demonstrate methods for teaching social, ethical, and legal issues and responsible use of educational technology.

3.3 Field Experiences

Candidates will participate in field experiences that allow them to (1) observe the use of educational technology to support instruction, and the evaluation of effectiveness of educational technology resources for teaching and learning; and (2) apply educational technology resources to support instruction in classroom settings.

Performance Indicators - Candidates Will:

3.3.1 Observe and compare methods and strategies used in educational technology in a variety of authentic educational settings (i.e., elementary, middle, secondary, adaptive assistive classrooms, labs).

3.3.2 Develop and teach a series of lessons that apply educational technology resources to support instruction.

4.0 Online Technology Experience and Skills

Program will prepare Candidates to participate in an online learning experience and demonstrate knowledge and use of an online learning management system(s), adapt online tools to support effective online instruction, understand internet safety issues as well as knowledge of social, ethical, legal, and human issues surrounding the use of educational technology in online teaching and learning, and be able to apply to principles and practice as they relate to technology experiences and skills.

4.1 Participate in an online learning experience

Candidates will experience an online learning opportunity where he/she will participate as a student in order to get the student's perspective in an effort to empathize with their future online student's needs and issues. Candidate's

online instructor will serve as a model who can be used as a reference point when Candidates teach their own online course.

Performance Indicators - Candidates Will:
4.1.1 Provide evidence that he/she has participated in an online learning experience as a student.
4.1.2 Articulate the challenges and problems in the online classroom from a student's perspective.
4.1.3 Discuss the role of the online instructor to provide a supportive, responsive environment to ensure student success.

4.2   Knowledge and use of online learning management system(s)

Candidates will demonstrate their understanding of online management systems and show their proficiency in using an online learning management system(s).

Performance Indicators - Candidates Will:
4.2.1 Discuss various online learning management systems including their functions, strengths, and weaknesses.
4.2.2 Provide evidence that he/she can successfully use an online learning management system(s).

4.3   Adaptation of online tools to support effective online instruction

There are several components within and outside of the online learning management system. The Candidate will demonstrate his/her ability to manipulate these functions and tools to support successful learning online.

Performance Indicators - Candidates Will:
4.3.1 Demonstrate effective use of word-processing, spreadsheet, and presentation software as they apply to online instruction.
4.3.2 Demonstrate effective use of Internet browsers, email applications, multimedia, and visual resources as they apply to online instruction.
4.3.3 Demonstrate ability to effectively use synchronous and asynchronous communication tools as they relate to online instruction.
4.3.4 Discuss how to integrate online tools to support effective online instruction.
4.3.5 Demonstrate the ability to modify and add content and assessments using an online Course Management System (CMS) and/or Learning Management System (LMS).

4.4   Understanding of internet safety issues

There are inherent dangers in the online environment. Candidates will demonstrate his/her ability to discuss those issues and provide appropriate solutions for them.

Performance Indicators - Candidates Will:
4.4.1 Explain internet safety issues including legal and ethical issues related to internet technology and society.
4.4.2 Demonstrate knowledge of resources and techniques for dealing with issues arising from inappropriate use of electronically accessed data or information.
4.4.3 Explain the role of the instructor and the role of the student as it relates to personal responsibility, privacy, and internet etiquette.

4.5   Knowledge of social, ethical, legal, and human issues

SURROUNDING THE USE OF EDUCATIONAL TECHNOLOGY IN ONLINE TEACHING AND LEARNING AND APPLY TO PRINCIPLES AND PRACTICE The online environment creates special circumstances for its users. The Candidate must be aware of those issues and be able to use a variety of strategies to promote a professional, responsible learning community.

Performance Indicators - Candidates Will:
4.5.1 Explain social, ethical, legal, and human issues involved in online teaching and learning.
4.5.2 Discuss proven standards such as Acceptable Use Policies for instructor and student behavior that are designed to ensure academic integrity and appropriate use of the Internet and written communication.

5.0   Online Course Design

Professional studies in online course design prepare Candidates to demonstrate knowledge and understanding of pedagogical issues related to teaching and learning in an online environment; develop and implement curriculum plans aligned with State content standards that include methods and strategies for applying educational technology to maximize learning in an online environment.
Professional studies in online course design prepare Candidates who are certified experts in the content subject area being taught, to demonstrate their knowledge and understanding of how to develop, design, and implement strategies that encourage active learning, interaction, participation, and collaboration in the online environment.
Professional studies in online course design prepare Candidates to demonstrate knowledge about effective online course design with knowledge and understanding of issues related to accessibility and adaptive technologies.
Finally, professional studies in online course design prepare Candidates to demonstrate knowledge of social, ethical,

legal, and human issues surrounding the use of educational technology teaching and learning as it applies to online course design.

5.1   Knowledge and understanding of pedagogical issues

As they relate to teaching and learning in the online environment: Candidates must have an understanding of how educational pedagogy applies to online teaching and learning course design.

Performance Indicators - Candidates Will:
5.1.1 Discuss teaching methodologies and how they should be used in the online environment to ensure teaching and learning success.
5.1.2 Create assignments, projects, and assessments that are consistent with students' different visual, auditory, and hands-on ways of learning.
5.1.3 Incorporate authentic assessments as part of the evaluation process.
5.1.4 Design pre- and post-test opportunities with immediate, differentiated feedback.
5.1.5 Create opportunities for continuous feedback to students throughout the online course.
5.1.6 Provide continuous improvement opportunities for the student and teacher via reflection on the effectiveness of the online environment.

5.2   Develop and implement curriculum plans

Aligned with state content standards that include methods and strategies for applying educational technology to maximize student learning in an online environment. Just as face to face courses, the online course must be designed to facilitate the learning of state content standards and benchmarks. Assignments and assessments must be aligned to those benchmarks to maximize the required student learning.

Performance Indicators - Candidates Will:
5.2.1 Review materials and Web resources for their appropriateness and alignment with course objectives and state and local standards.
5.2.2 Design online course elements that demonstrate a relationship between the assignments, assessments, and standards-based learning goals.

5.3   Certified content expert in the area that is being taught online

Following the No Child Left Behind Act, Candidates must be certified and highly qualified in the subject area they will be teaching whether it be in the traditional classroom or online classroom.

Performance Indicators - Candidates Will:
5.3.1 Meet state professional teaching standards having academic credentials in the field in which he/she is teaching the online course.
5.3.2 Know the content of the subject to be taught and understand how to teach the content to students in the online environment.
5.3.3 Facilitate the construction of knowledge through an understanding of how students learn in specific subject area being taught online.
5.3.4 Demonstrate continuous learning and professional growth in academic knowledge and skills as well as emerging online technologies.

5.4 Knowledge and understanding of how to develop, design, and implement strategies

That encourage active learning, interaction, participation, and collaboration in the online environment: As in the traditional teaching environment, communication is very important to the learning process. Candidates need to foster communication and interaction in the online environment to ensure continuous communication directly related to learning.

Performance Indicators - Candidates Will:
5.4.1 Demonstrate effective strategies and techniques that actively engage students in the learning process (e.g.: team problem-solving)
5.4.2 Monitor and facilitate appropriate interaction among students.
5.4.3 Promote learning through group interactions and roles.
5.4.4 Facilitate goal-oriented online instruction groups that are focused, inquiry-oriented, and project-based.

5.5 Knowledge about effective course design for an online environment

The Candidate must know and understand best practices for course design for the online environment in order to be able to develop and nurture an effective online community of learners.

Performance Indicators - Candidates Will:
5.5.1 Explain effective course design for the online environment and how it promotes learning.
5.5.2 Differentiate instruction based on student's learning styles and needs and assists students in assimilating information to gain understanding and knowledge.
5.5.3 Promote a community of learners by creating a relationship of trust through consistency, reliability, and fairness through the use of effective online course design.

5.5.4 Provide more than one way to obtain the same information throughout the course.
5.5.5 Demonstrate effective facilitation using appropriate online course functions that establish consistency and reliable expectation while supporting and encouraging independence and creativity.
5.5.6 Design an effective way to disseminate content and concepts to students.
5.5.7 Design an effective way for students to turn in assignments, projects, assessments, etc.

5.6 Knowledge and understanding of issues related to accessibility and adaptive technologies

 (Federal Section 508)
Candidates must be aware of Federal Laws as they relate to accessibility and adaptive technologies in order to incorporate them into the design of the online course. Candidates must show an awareness of students' varied talents and skills and use appropriate strategies to include all students in the learning process within the online environment.

Performance Indicators - Candidates Will:
5.6.1 Discuss learner accessibility and adaptive technology needs in the online classroom.
5.6.2 Explain appropriate strategies designed to include ALL students in the online classroom.
5.6.3 Demonstrate knowledge of and design strategies for addressing cultural background and learning needs of non-native English speakers.
5.6.4 Provide activities and modified activities that are relevant to the needs of all students.
5.6.5 Design adaptable instruction to create multiple paths to learning objectives.
5.6.6 Create a monitored plan that encourages collaboration and interaction among all students.
5.6.7 Design ways to assess student knowledge and instruction in a variety of ways (portfolio instruction and assessment).
5.6.8 Provide student-centered, active learning opportunities that are connected to real-world applications.
5.6.9 Provide student choice of instruction mode and assessment type whenever possible.

5.7 Knowledge of social, ethical, legal, and human issues

Surrounding the use of educational technology in online teaching and learning and apply to design principles and practice: Candidates must be mindful of the human issues involved in online teaching and learning and be able to use design principles to be proactive against potential issues.

Performance Indicators - Candidates Will:
5.7.1 Promote standards for student behavior that are designed to ensure academic integrity and appropriate use of the Internet and written communication.

5.7.2 Communicate the risks of academic dishonesty for students and Acceptable Use Policies to students.
5.7.3 Incorporate student investigations of legal and ethical issues related to online technology and society.
5.7.4 Establish course content that complies with intellectual property rights policies and fair use standards.
5.7.5 Communicate students' right to privacy and condition under which their names or online submissions may be shared with others.
5.7.6 Discuss resources and techniques for dealing with issues arising from inappropriate use of electronically accessed data or information.
5.7.7 Explain how the use of technology may impact student testing performance and provide design strategies to help solve potential assessment issues.

6.0   Online Course Delivery

Professional studies culminating in the educational technology endorsement prepare Candidates to demonstrate knowledge and understanding of:
Best practices for online delivery of instruction, effective online course technology management, appropriate online assessment and measurement techniques and tools, modeling, moderation and facilitation skills for appropriate online communication with timely feedback, and thoughtful accommodation of student's special needs in an online environment. Professional studies culminating in the educational technology endorsement prepare Candidates to facilitate collaboration and incorporate teaming activities in the online environment informed by knowledge of social, ethical, legal, and human issues surrounding the use of educational technology and can apply to principles and practices in teaching and learning as it relates to online course delivery.

6.1   Knowledge and understanding of online delivery instructional strategies and best practices

Candidates will know and understand the online environment and that it provides several options for delivery of instruction. Candidates need to be familiar with the various tools and how they can be used to promote learning in a pedagogically sound manner.

Performance Indicators - Candidates Will:
6.1.1 Demonstrate an understanding of online delivery tools available to promote specific instructional strategies and best practices.
6.1.2 Use students' background and content knowledge data to plan instruction.
6.1.3 Use student data to inform instruction, monitor learner progress with available tools and develop an intervention plan for unsuccessful learners.

6.1.4 Modify instruction as needed based on observational data (tracking data, web logs, email, etc.) and assessment data.

6.1.5 Create opportunities for self-reflection or assessment of teaching effectiveness within the online environment.

6.2   Knowledge and understanding of effective online course management techniques

Candidates will know, understand, and be able to successfully manage an online course using the available online course tools and functions to ensure effective and efficient learning.

Performance Indicators - Candidates Will:

6.2.1 Discuss effective online course management techniques and tools as they relate to communication, knowledge dissemination, assessment, and student assignment logistics.

6.2.2 Guide and monitor students' management of their time.

6.2.3 Effectively model communication skills and maintain records of applicable communications with students.

6.2.4 Give students clear expectation about teacher response time and follow through.

6.2.5 Establish and maintain frequent and ongoing teacher-student interaction, student-student interaction, and teacher-parent interaction.

6.2.6 Communicate technology challenges and contingency plans and strategies for students to persist in the class.

6.3   Understanding of appropriate online assessment and measurement techniques and tools

Candidate must understand how to use educationally sound online measurement instruments and create assessments that are valid and reliable for content learning consistency.

Performance Indicators - Candidates Will:

6.3.1 Describe the various online course management functions and how they can be used as assessment instruments.

6.3.2 Create fair, adequate, and appropriate assessments to measure online learning that reflects the content they are designed to measure (validity).

6.3.3 Create online assessment instruments and materials that ensure reliability and consistency over time.

6.4   Models, moderates, and facilitates appropriate online communication

Communication in the online environment is imperative to establishing safe and trusting learning communities. Appropriate communication moves the course forward. Consistent, suitable communication establishes relationships between and among the teacher and students needed for a successful online experience.

6.4.1 Provide an online syllabus that details the guidelines for class interaction for both teacher and students, define clear expectation for both teacher and students, define the grading criteria, establish inappropriate behavior criteria and consequences, and explain the course organization to students.
6.4.2 Communicate course objectives, concepts, and learning outcomes in a clearly written, concise form.
6.4.3 Model effective and appropriate teacher-student, student-student, and teacher-parent communication within the online course.
6.4.4 Provide a variety of ways and places for students to communicate within the online environment.

6.5   Provides appropriate and timely feedback

Research shows that timely feedback helps students correct learning prior to inappropriate schema implantation. Timely feedback also serves to establish relationships and provides motivation for students to continue and be successful in the online environment.

Performance Indicators - Candidates Will:
6.5.1 Discuss the pedagogical rationale for timely feedback and how it affects learning.
6.5.2 Discuss inappropriate feedback explaining what it is and the dangers to students and how it can be avoided.
6.5.3 Provide timely answers to questions and constructive feedback to students about assignments.

6.6   Understands and is responsive to students' special needs

The online environment presents unique challenges to each student whether it is technological, emotional, social, intellectual, or physical. It is important for the Candidate to be aware of a students' ability to be successful in the online environment.
Performance Indicators - Candidates Will:
6.6.1 Demonstrate an understanding of students with special needs in the online environment and how that affects course delivery.
6.6.2 Assess student readiness for the online method of delivery as well as the course content (online success indicator surveys, etc.).
6.6.3 Provide an opportunity for student self-assessment of success within the course.

6.7   Facilitates collaboration and incorporates teaming activities

Collaboration and teaming activities provide opportunities for students to work on skills that will be needed to be successful society contributors throughout their lives. Collaboration also fosters communication which is critical to

establishing relationships needed for a successful online learning experience. Therefore, the Candidate will demonstrate proficiency in these areas.

Performance Indicators - Candidates Will:
6.7.1 Establish team-building activities in the beginning of the course to help develop a safe environment with positive relationships among peers.
6.7.2 Confirm group roles and responsibilities among students.
6.7.3 Incorporate collaboration and teaming activities throughout the online course.

6.8   Knowledge of social, ethical, legal, and human issues

Surrounding the use of educational technology in online teaching and learning and apply to online course delivery principles and practice:
Candidates must understand the issues involved in delivering responsible online teaching and learning opportunities. Candidates are accountable for their students' documented understanding of the potential issues and the consequences.

Performance Indicators - Candidates Will:
6.8.1 Facilitate student investigations of legal and ethical issues related to technology and society.
6.8.2 Clearly communicate in writing the course expectations and consequences as it relates to social, ethical, legal, and human issues surrounding the participation in the online course.

Glossary

Acceptable Use Policy	An acceptable use policy (AUP; also sometimes acceptable usage policy) is a set of rules applied by network and website owners which restrict the ways in which the network or site may be used. AUP documents are written for corporations, businesses, universities, schools, and website owners often to reduce the potential for legal action that may be taken by a user, and often with little prospect of enforcement. The MDE policy identifies acceptable use of State of Michigan Information Technology Resources, provides awareness of expected end-user behavior, and is also intended to safeguard IT data resources. This policy requires that end-users maintain respect for the privacy of protected citizen and employee information at all times. A cooperative effort from every employee is necessary to prevent misuse, eliminate the risk of liability to the state, and promote the efficient utilization of IT resources and information technology services.
Assistive Devices or Classrooms	Any device that is designed, made, or adapted to assist a person to perform a particular task or participate in specific activities. For example, canes, crutches, walkers, wheel chairs, hearing aids, glasses, microphones, are all assistive devices. Classrooms with specialized equipment or furnishings are assistive classrooms.
Authentic Assessments	Authentic assessment reflects educational policy research that recommends a high priority on strategies that research has already shown to increase student learning. Authentic assessment tends to focus on complex or contextualized tasks, enabling students to demonstrate their competency in a more 'authentic' setting. Examples of authentic assessments include: • performance of the skills, or demonstrating use of a particular knowledge • simulations and role plays • studio portfolios, strategically selecting items • exhibitions and displays
CMS	Course Management System (CMS) one way to state that a computer program facilitates computerized learning. Such e-learning systems are also called Learning Management System (LMS), Course Management System (CMS), Learning Content Management System (LCMS), Managed Learning Environment (MLE), Learning Support System (LSS), or Learning Platform (LP); it is education via computer-mediated communication (CMC) or Online Education.

COATT	Consortium for Outstanding Achievement in Teaching with Technology
Collaborative Teaching	Collaborative teaching involves the ongoing, active, and substantive participation of teaching professionals, working together toward the creation and delivery of integrated, aligned instruction.
DLEG/CTE	Department of Labor and Economic Growth/Career Technical Education
Endorsement	An endorsement is the authorization, based on the completion of a standards-based program of study and successful completion of appropriate assessment, which is attached to a teaching certificate that allows a teacher to be the teacher of record for a specialty content area.
Information Age	The Information Age is perceived to offer additional freedom to students to learn and educators to teach, regardless of time, place, ethnicity, or social and economic status. Information technology allows educators to "diagnose" in very particular ways the needs and talents of individual students. An Information Age-focused education allows educators and students to individualize the learning programs for each student, while leveraging technology's ability to scale up for all students. Students would learn not only from their classroom teacher, but also from experts anywhere across the world at any time. Schools would transcend their four walls and become learning communities reaching out to access and incorporate a variety of traditional and non-traditional resources (SBE Information Age Task Force, 2001).
ISD	Intermediate School District
Learning Communities	A learning community is a group of people who share common values and beliefs, are actively engaged in learning together from each other.
LMS	A Learning Management System (or LMS) is a term used to describe software tools designed to manage user learning interventions. LMSs go far beyond conventional training records management and reporting. The value-add for LMSs is the extensive range of complementary functionality they offer. Learner self-service (e.g. self-registration on instructor-led training), training workflow (e.g. user notification, manager approval, waitlist management), the provision of on-line learning (e.g. Computer-Based Training, read & understand), on-line assessment, management of continuous professional education (CPE), collaborative learning (e.g. application sharing, discussion threads), and training resource management (e.g. instructors, facilities, equipment), are some of the additional dimensions to leading Learning Management Systems.
MACUL	Michigan Association for Computer Users in Learning

MVU	Michigan Virtual University
NP	The Michigan Department of Education endorsement code used for Educational Technology Endorsement standards.
Online learning	A structured learning activity that utilizes technology with intranet/internet-based tools and resources as the delivery method for instruction, research, assessment, and communication.
Performance Indicators	A specified set of qualitative or quantitative data points and descriptors that provide a score or ranking of performance for monitoring purposes.
PSCT	Professional Standards Commission for Teachers
PSMT	Professional Standards for Michigan Teachers
Referent Group	The invited group of experts from professional associations, teacher preparation institutions, intermediate school districts or regional education service agencies and local school districts with specialized content knowledge and experience who provide guidance for the Michigan Department of Education projects.
SBE	State Board of Education