## International Society for Technology in Education (ISTE)

## **Educational Computing and Technology Standards for**

Technology Facilitation Initial Endorsement

Technology Leadership Advanced Program

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#### **Introduction to ISTE /NCATE Program Standards**

Educational computing and technology (ECT) is an emerging field, which encompasses many sub-disciplines. This field includes knowledge about and use of computers and related technologies for (1) integration of technology and curriculum to support learning; (2) delivery, development, prescription, and assessment of instruction; (3) effective use of computers as an aid to problem solving; (4) school and classroom management; (5) educational research; (6) electronic information access and exchange; (7) personal and professional productivity; (8) technical assistance and leadership; and (9) computer science education. The International Society for Technology in Education (ISTE) recognizes that educational computing and technology foundations (NETS for Teachers) are essential for all teachers. ISTE also acknowledges educational computing and technology specialty areas beyond these foundations and has established program standards for initial and advanced programs. These program standards will assist teacher education units, and professional organizations and agencies in understanding and evaluating the educational preparation needed for specialization within the field.

These programs will prepare teacher candidates to keep abreast of changes in educational computing and technology and their impact on education. In addition, the candidates will be equipped to utilize and integrate a broad range of educational computing and technology applications to enhance K-12 student learning and their own productivity. Finally, candidates will be prepared to work effectively as professional leaders to advance their specific fields within a culturally diverse society. ISTE has developed performance assessment standards for initial and advanced educational technology programs including: (1) the technology facilitation endorsement; program (2) the technology leadership advanced program; and (3) the secondary computer science education endorsement program. Institutions offering one or more of these programs should respond to the corresponding set of program standards. "Endorsement" indicates that these programs prepare teachers for an add-on endorsement to an existing teaching certificate.

**Technology Facilitation (TF) endorsement** programs meeting ISTE standards prepare teacher candidates to serve as building/campus-level technology facilitators. Candidates completing this program will exhibit knowledge, skills, and dispositions equipping them to teach technology applications; demonstrate effective use of technology to support student learning of content; and provide professional development, mentoring, and basic technical assistance for other teachers who require support in their efforts to apply technology to support Grades K-12 student learning. *(Revised Fall 2001)* 

**Technology Leadership (TL) -- Advanced Program Standards --**Technology Leadership (TL) advanced programs meeting ISTE standards prepare candidates to serve as technology directors, coordinators, or specialists. Special preparation in computing systems, facilities planning and management, instructional program development, staff development, and other advanced applications of technology to support student learning and assessment will prepare candidates to serve in technology-related leadership positions at district, regional, and/or state levels. (*Revised Fall 2001*)

Secondary Computer Science Education (CS) – Initial Endorsement Program Standards Secondary Computer Science Education programs meeting ISTE standards prepare teacher candidates to serve as teachers of computer science in secondary schools. They focus on preparing their students in technical aspects of computing such as programming and algorithm design, computer system organization and operation, data representation and information organization, and social aspects of computing. High school computer science teachers help students examine the applications and implications of computing and provide the conceptual computer science framework to assist students interested in exploring the field in depth. (Revised Fall 2002)

**This specific document** focuses on the requirements for submitting a program report for review by the International Society for Technology in Education (ISTE) that will determine national recognition for programs preparing candidates for **Educational Technology Facilitation** and **Educational Technology Leadership** programs.

#### **Explanation of the Knowledge Base**

In preparing program standards, ISTE has drawn on developments in standards from the National Educational Technology Standards (NETS) for P-12 students and NETS for Teachers prepared by ISTE's NETS Project. The NETS reflect a national consensus developed through an extensive review and revision process. The NETS standards have been widely used throughout the nation to guide states, districts, schools, and universities in application of technology in the educational process. In the brief time that the standards have been in the public, over half of the states have already adopted, adapted, correlated, or based educational technology standards or state technology plans on the NETS materials. Therefore, these proposed standards outlining performances expected of candidates preparing to serve as building facilitators and/or district, regional, or state leaders for integration of educational technology in educational settings are built upon the NETS for Teachers and NETS for Students. Illustrating this alignment is *Appendix I.A Program Alignments with Established Standards*. Also included are alignment of NETS with the INTASC standards used widely for P-12 and teacher preparation programs.

- A brief list of documents attributing significant research base for our standards follow.
- Campbell, D. & Cignetti, P., Meleyzer, B., Nettles, D., Wyman, R. (2001). *How to develop a professional portfolio*. Boston: MA: Allyn and Bacon.
- Dimock, V., & Heath, M., & Burns, M., & Burniske, J., & Menchaca, M, & Ravitz, J. (2000). *Applying technology to restructuring and learning: Research report.* Austin, TX: Southwest Educational Development Laboratory.
- Forcier, R. (1999). *The computer as an educational tool: Productivity and problem solving.* (2nd ed.). Columbus, OH: Merrill of Prentice Hall.
- Galin, J., & Latchaw, J. (1998). *The dialogic classroom: Teachers integrating computer technology, pedagogy, and research.* Urbana, IL: National Council of Teachers of English.
- Hawisher, G., & Selfe, C. (1999). *Passions, pedagogies, and 21st century technologies.* Urbana, IL: National Council of Teachers of English/Utah State University Press.
- Kane, J. (1999). *Education, information, and transformation: Essays on learning and thinking*. Columbus, OH: Merrill of Prentice Hall.
- Jonassen, D. & Peck, K., & Wilson, B. (1999) *Learning with technology: A constructivist perspective*. Columbus, OH: Merill of Prentice-Hall.
- Morrison, G., & Lowther, D., & DeMeulle, L. (1999). *Integrating computer technology into the classroom*. Columbus, OH: Merrill of Prentice Hall.
- Moursund, D. (1999). *Project-based learning using information technology*. Eugene, OR: International Society for Technology in Education.
- Valdez, G., & McNabb, M. &, Foertsch, M., & Anderson, M., & Hawkes, M., & Raack, L. (1999). Computer-based technology and learning: Evolving uses and expectations. Oak Brook, IL: North Central Regional Educational Laboratory.
- Zemelman, S., & Daniels, H., & Hyde, A. (1998). Best practice: New standards for teaching and learning in America's schools. (2nd ed.). Portsmouth, NH: Heinemann.
- ISTE has made use of the knowledge base, including current research and the wisdom of practice, appropriate for preparing professionals for leadership positions in the area of educational technology. ISTE NETS are clearly built upon current accepted standards of accomplished teaching and leadership.

Although the standards include the necessary technology components, they also are grounded in application of technology as it supports sound pedagogical theory and practice. All of the ISTE standards prepare preservice candidates, teachers, and technology specialists to provide the environments, experiences, and resources that will help P-12 students effectively apply technology for learning, communications, problem-solving, and decision-making. The ISTE standards for teachers, technology leaders, and administrators all are designed to support the development of technology-capable P-12 students, who must, in today's world, become:

- Capable information technology users,
- Information seekers, analyzers, and evaluators,
- · Problem-solvers and decision-makers,
- Creative and effective users of productivity tools,
- Communicators, collaborators, publishers, and producers, and
- Informed, responsible, and contributing citizens. (NETS, 1998)

Technology applied appropriately throughout the schooling process can provide educators with strong support for preparing students to achieve these goals. The ISTE standards support the development of technology capable students through the application of constructivist learning theory as described in six principles of constructivism identified from literature review by the ATRL Project team (Dimock, V., Southwest Educational Development Laboratory, 2000)

- Learners bring unique prior knowledge, experience, and beliefs to a learning situation.
- Knowledge is constructed uniquely and individually, in multiple ways, through a variety of authentic tools, resources, experiences, and contexts.
- · Learning is both an active and reflective process.
- Learning is a developmental process of accommodation, assimilation, or rejection to construct new conceptual structures, meaningful representations, or new mental models.
- Social interaction introduces multiple perspectives through reflection, collaboration, negotiation, and shared meaning.
- Learning is internally controlled and mediated by the learner.

These constructivist principles provide a context for the integration of technology to support learning in powerful ways. The following diagram, included in all ISTE standards documents, illustrates movement from application of traditional learning strategies, to strategies aligned closely with constructivist learning principles. The strategies identify observable characteristics of constructivist learning environments that can be facilitated with technology. As ISTE specifies standards for programs preparing educational technology leaders, the standards must reflect the expectation that candidates will develop knowledge, skills, and dispositions preparing them to facilitate the development of such powerful learning environments within their own classrooms.

### ESTABLISHING NEW LEARNING ENVIRONMENTS Incorporating New Strategies

Traditional Learning Environments	New Learning Environments
Teacher-centered instruction	
Single sense stimulation	→Multisensory stimulation
Single path progression	→Multipath progression
Single media	→Multimedia
Isolated work	
Information delivery	→Information Exchange
Passive learning	. , , ,
Factual, knowledge-based learning	Informed decision-making
Reactive response	→Proactive/planned action
Isolated, artificial context	→Authentic, real-world context

Although the strategies for the new learning environments described do not specifically denote use of technology, it is clear that technology can very dramatically support the implementation of these strategies. All of the ISTE standards and curriculum integration materials focus on building new learning environments that use technology to support research-based strategies to improve student learning.

# International Society for Technology in Education Check Sheet for Technology Facilitation and Technology Leadership Programs Please include one copy of this cover sheet with each program report

	Submitted by (Name of Institution):	
	Address:	
	Chief Compiler:	
	Phone:	Fax:
	Date:	E-mail Address:
	Date of On-site Visit:	
		ship Advanced Program
	CHECK SHEET FOR CONTEXTUAL INFORMATION	N TO BE INCLUDED IN PROGRAM REPORT:
(1) (2) (3) (4) (5) (6) (7) (8) (10) (11) (12)	experiences fit in the overall program, and what artifator Description of field experiences, student teaching, an amount of time and the type of supervision.  Information about plans for, and operation of, the program is located within the with other programs in the unit and the university/colled Program self-evaluation focusing on perceived program standards.  a. Number of candidates currently enrolled in the program over the List of faculty with assignments in the program. Used describing your faculty, their responsibilities for these and/or teaching qualities that make them particularly Indicate labs/classroom computer facilities available from settings for internships.  Attach a copy of any written policies or procedures the Guidelines, etc.).  Criteria used at admission to post-baccalaureate program NETS technology foundations standards and academ Criteria used at completion of program and follow-up the candidate for positions in educational computing a tax/Matrices. The Program Matrices are intended to importance of identifying evidence that can support However, the program report does not require that this understanding of the subject content they are prepar determines that candidates have demonstrated surfaces described in the specialty program standards and set have met the standards and performance expectation.  NOTE: The complete institutional program report total.	runities to exhibit performance standards, where these cts are expected as a result of the experience. In internships, as appropriate per program. Include the gram assessment system. The professional education unit and its interrelationships age.  In am strengths and deviations from specialty organization agram.  In a standards and their experiences, accomplishments, and their experiences, accomplishments, and their experiences, accomplishments, and their experiences, accomplishments, and their experiences and P-12 are guide or govern each program (e.g., State grams to determine if the candidate has met the ISTE and technology fields.  In the field to determine if the program has prepared and technology fields.  Indicate standards and performance indicators and the ret that the candidates have met those expectations. Its format be used to convey candidates' knowledge and ing to teach. The institution specifies how the program abject knowledge and understanding for teaching as elects a format that clearly denotes that the candidates is  Is no more than 140 pages, including appendices.
	Specialty organizations provide guidance to institution program reports.	

#### **LIST OF FACULTY**

Please complete this chart or a narrative describing your faculty, their responsibilities for these programs and their experiences, accomplishments, and/or teaching qualities that make them particularly effective in this program. (Please do NOT submit vitae).

Program:								
Include one sheet per program for which accreditation is sought.								
Lis	ist faculty teaching specialty area and professional area coursework in the program.							
	Name (include full/par adjuncts, TA's, oth	Highest Degree ner) Attained	Tenure Track? (Yes/No)	Rank	Full Time at University? (Yes/No)	% Time in Specialty Courses	De	pt.
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

#### **Instructions for Completing Matrices**

The matrices for ISTE /NCATE Standards includes in column one, a list of the standards, indicators, and performance tasks and, in column two, a space where links to evidence showing the standard has been met can be recorded. The evidence may consist of performance results based on a variety of data from the assessment of artifacts from candidate work, application of rubrics, observation tools, exams, reflections, journals, writing samples, videos, lesson plans, e.g., compiled in a standards-based electronic portfolio. If the information is digital, the matrix can provide a link directly to the source. If the information is in paper form or other non-digital accessible form, then a narrative description and clear identification of the location of the evidence can be inserted in the matrix instead. Below is shown one standard performance indicator from the Technology Facilitation matrix as an example:

#### Standards Matrix - Technology Facilitation

**Standard TF-III. Teaching, Learning, and the Curriculum.** Educational technology facilitators apply and implement curriculum plans that include methods and strategies for utilizing technology to maximize student learning. Educational technology facilitators:

TF-III Performance Indicators & Tasks	Links to Evidence that Standard has been met:	
TF-III.A. Facilitate technology-enhanced experients standards. Candidates:	nces that address content standards and student technology	
1. Use methods and strategies for teaching concepts and skins that support integration of technology productivity tools (refer to NETS for Students).	Performance evidence:  1) Teacher Support: documentation of professional development contacts with teachers, preparation of support materials for integration of technology in the classroom, dates that teachers integrated technology, artifacts of teacher and student work. (http://www.univ.edu/TF/portfolio/techintegrationsummaries).  2) Lesson/Unit Plans: Lesson/unit plans developed by candidates include correlation to NETS for Students (http://www.univ.edu/TF/portfolio/lessonplans) and strategies for integration of productivity tools to support student learning. Artifacts of student work (http://www.univ.edu/TF/studentwork)  3) TF Standards RubricSummary Report: See summary results (p. 12, Portfolio Exhibit C., TF-III.A, Rubric Summary Report).	

## International Society for Technology in Education Educational Computing and Technology Programs: Technology Facilitation Initial Endorsement

- 1) Standards
- 2) Rubrics
- 3) Supporting Explanation

# INTERNATIONAL SOCIETY FOR TECHNOLOGY IN EDUCATION (ISTE) Educational Computing and Technology Standards for Technology Facilitation Initial Endorsement

#### INTRODUCTION

#### **Technology Facilitation (TF)-- Initial Endorsement Standards**

Educational Computing and Technology Facilitation (TF) endorsement programs meeting ISTE standards will prepare candidates to serve as building/campus-level technology facilitators. Candidates completing this program will exhibit knowledge, skills, and dispositions equipping them to teach technology applications; demonstrate effective use of technology to support student learning of content; and provide professional development, mentoring, and basic technical assistance for other teachers who require support in their efforts to apply technology to support student learning.

The International Society for Technology in Education recognizes that educational computing and technology foundations are essential for all teachers. ISTE also acknowledges educational computing and technology specialty areas beyond these foundations and has established program standards for initial and advanced programs. These program standards will assist teacher education units, and professional organizations and agencies in understanding and evaluating the educational preparation needed for specialization within the field.

#### Who should complete the ISTE Educational Computing and Technology Facilitation program standards?

This document contains program standards for the Educational Computing and Technology Facilitation (TF) initial endorsement designed to prepare candidates to serve as building/campus-level technology facilitators. Institutions that offer this program should respond to the corresponding program standards.

**TECHNOLOGY FACILITATION (TF) STANDARDS MATRIX** 

TECHNOLOGI FACILITATION (11) STANDARDS MATRIX	
Prerequisite Foundation Standards- ISTE National Educational Technology Standards(NETS	
meet prerequisite foundations for educational technology prior to full admission to the Technology F	Facilitation program. (http://cnets.iste.org)
TF-I Performance Indicators & Tasks	Links to Evidence that Standard has been met:
	Artifacts, Performance Data
NETS for Teachers Admissions Assessment	
Technology Facilitation Standard I. (TF-I)	
Technology Operations and Concepts. Educational technology facilitators demonstrate an in-de	pth understanding of technology operations and concepts.
Educational technology facilitators:	
TF-I Performance Indicators & Tasks	Links to Evidence that Standard has been met:
	Artifacts, Performance Data
TF-I.A. Demonstrate knowledge, skills, and understanding of concepts related to technology (as describ	ed in the ISTE National Educational Technology Standards for
Teachers). Candidates:	
<ol> <li>Assist teachers in the ongoing development of knowledge, skills, and understanding of technology</li> </ol>	
systems, resources, and services that are aligned with district and state technology plans.	
2. Provide assistance to teachers in identifying technology systems, resources, and services to meet	
specific learning needs.	
TF-I.B. Demonstrate continual growth in technology knowledge and skills to stay abreast of current and	emerging technologies. Candidates:
TF-I.B. Demonstrate continual growth in technology knowledge and skills to stay abreast of current and 1. Model appropriate strategies essential to continued growth and development of the understanding of	emerging technologies. Candidates:

Technology Facilitation Standard II. (TF-II)			
Planning and Designing Learning Environments and Experiences. Educational technology facilitators plan, design, and model effective learning environments			
and multiple experiences supported by technology. Educational technology facilitators:			
TF-II Performance Indicators & Tasks	Links to Evidence that Standard has been met: Artifacts, Performance Data		
TF-II.A. Design developmentally appropriate learning opportunities that apply technology-enhanced ins	structional strategies to support the diverse needs of learners.		
Candidates:			
Provide resources and feedback to teachers as they create developmentally appropriate curriculum units that use technology.			
<ol><li>Consult with teachers as they design methods and strategies for teaching computer/technology concepts and skills within the context of classroom learning.</li></ol>			
Assist teachers as they use technology resources and strategies to support the diverse needs of learners including adaptive and assistive technologies.			
TF-II.B. Apply current research on teaching and learning with technology when planning learning enviro	onments and experiences. Candidates:		
Assist teachers as they apply current research on teaching and learning with technology when			
planning learning environments and experiences.	latan		
TF-II.C. Identify and locate technology resources and evaluate them for accuracy and suitability. Candid  1. Assist teachers as they identify and locate technology resources and evaluate them for accuracy and	iales.		
suitability based on district and state standards.			
Model technology integration using resources that reflect content standards.			
TF-II.D. Plan for the management of technology resources within the context of learning activities. Cand	lidates:		
Provide teachers with options for the management of technology resources within the context of learning activities.			
TF-II.E. Plan strategies to manage student learning in a technology-enhanced environment. Candidates:			
Provide teachers with a variety of strategies to use to manage student learning in a technology-			
enhanced environment and support them as they implement the strategies.			
TF-II.F. Identify and apply instructional design principles associated with the development of technolog	y resources. Candidates:		
Assist teachers as they identify and apply instructional design principles associated with the			
development of technology resources.			

# Technology Facilitation Standard III. (TF-III) Teaching, Learning, and the Curriculum. Educational technology facilitators apply and implement curriculum plans that include methods and strategies for utilizing technology to maximize student learning. Educational technology facilitators: TF-III Performance Indicators & Tasks Links to Evidence that Standard has been met: Artifacts, Performance Data TF-III.A. Facilitate technology-enhanced experiences that address content standards and student technology standards. Candidates: 1. Use methods and strategies for teaching concepts and skills that support integration of technology productivity tools (refer to NETS for Students). 2. Use and apply major research findings and trends related to the use of technology in education to support integration throughout the curriculum. 3. Use methods and strategies for teaching concepts and skills that support integration of research tools (refer to NETS for Students). 4. Use methods and strategies for teaching concepts and skills that support integration of problem solving/ decision-making tools (refer to NETS for Students).

TF-III Performance Indicators & Tasks	Links to Evidence that Standard has been met: Artifacts, Performance Data
5. Use methods and strategies for teaching concepts and skills that support use of media-based tools	
such as television, audio, print media, and graphics.	
6. Use and describe methods and strategies for teaching concepts and skills that support use of	
distance learning systems appropriate in a school environment.	
7. Use methods for teaching concepts and skills that support use of web-based and non web-based	
authoring tools in a school environment.	
TF-III.B. Use technology to support learner-centered strategies that address the diverse needs of stude	nts. Candidates:
<ol> <li>Use methods and strategies for integrating technology resources that support the needs of diverse</li> </ol>	
learners including adaptive and assistive technology.	
TF-III.C. Apply technology to demonstrate students' higher order skills and creativity. Candidates:	
Use methods and facilitate strategies for teaching problem solving principles and skills using	
technology resources.	
TF-III.D. Manage student learning activities in a technology-enhanced environment. Candidates:	
Use methods and classroom management strategies for teaching technology concepts and skills in	
individual, small group, classroom, and/or lab settings.	
TF-III.E. Use current research and district/region/state/national content and technology standards to bu	ild lessons and units of instruction. Candidates:
Describe and identify curricular methods and strategies that are aligned with	
district/region/state/national content and technology standards.	
Use major research findings and trends related to the use of technology in education to support	
integration throughout the curriculum.	

Technology Facilitation Standard IV. (TF-IV)  Assessment and Evaluation. Educational technology facilitators apply technology to facilitate a vi	ariety of effective assessment and evaluation strategies.
Educational technology facilitators:  TF-IV Performance Indicators & Tasks	Links to Evidence that Standard has been met: Artifacts, Performance Data
FF-IV.A. Apply technology in assessing student learning of subject matter using a variety of assessmen	t techniques. Candidates:
Model the use of technology tools to assess student learning of subject matter using a variety of assessment techniques.	
Assist teachers in using technology to improve learning and instruction through the evaluation and assessment of artifacts and data.	
F-IV.B. Use technology resources to collect and analyze data, interpret results, and communicate findi Candidates:	ngs to improve instructional practice and maximize student learning.
Guide teachers as they use technology resources to collect and analyze data, interpret results, and communicate findings to improve instructional practice and maximize student learning.	
F-IV.C. Apply multiple methods of evaluation to determine students' appropriate use of technology res	ources for learning, communication, and productivity. Candidates:
1. Assist teachers in using recommended evaluation strategies for improving students' use of technology resources for learning, communication, and productivity.	
<ol> <li>Examine and apply the results of a research project that includes evaluating the use of a specific technology in a P-12 environment.</li> </ol>	

Technology Facilitation Standard V. (TF-V)	
Productivity and Professional Practice. Educational technology facilitators apply technology to enl	hance and improve personal productivity and professional practice
Educational technology facilitators:	
TF-V Performance Indicators & Tasks	Links to Evidence that Standard has been met: Artifacts, Performance Data
FF-V.A. Use technology resources to engage in ongoing professional development and lifelong learning.	Candidates:
I. Identify resources and participate in professional development activities and professional technology organizations to support ongoing professional growth related to technology.	
2. Disseminate information on district-wide policies for the professional growth opportunities for staff, faculty, and administrators.	
F-V.B. Continually evaluate and reflect on professional practice to make informed decisions regarding th	e use of technology in support of student learning. Candidates:
Continually evaluate and reflect on professional practice to make informed decisions regarding the use of technology in support of student learning.	
FF-V.C. Apply technology to increase productivity. Candidates:	
Model advanced features of word processing, desktop publishing, graphics programs, and utilities to develop professional products.	
Assist others in locating, selecting, capturing, and integrating video and digital images in varying formats for use in presentations, publications and/or other products.	
3. Demonstrate the use of specific-purpose electronic devices (such as graphing calculators, languages translators, scientific probeware, or electronic thesaurus) in content areas.	
<ol> <li>Use a variety of distance learning systems and use at least one to support personal/ professional development.</li> </ol>	
<ol><li>Use instructional design principles to develop hypermedia and multimedia products to support personal and professional development.</li></ol>	
<ol><li>Select appropriate tools for communicating concepts, conducting research, and solving problems for an intended audience and purpose.</li></ol>	
Use examples of emerging programming, authoring or problem solving environments that support personal/professional development.	
Set and manipulate preferences, defaults, and other selectable features of operating systems and productivity tool programs commonly found in P-12 schools.	
F-V.D. Use technology to communicate and collaborate with peers, parents, and the larger community in	order to nurture student learning. Candidates:
Model the use of telecommunications tools and resources for information sharing, remote information access, and multimedia/hypermedia publishing in order to nurture student learning.	
<ol><li>Communicate with colleagues and discuss current research to support instruction, using applications including electronic mail, online conferencing, and web browsers.</li></ol>	
Participate in online collaborative curricular projects and team activities to build bodies of knowledge around specific topics.	
Design, develop, and maintain Web pages and sites that support communication between the school and community.	

Technology Facilitation Standard VI. (TF-VI)			
Social, Ethical, Legal, and Human Issues. Educational technology facilitators understand the social, ethical, legal, and human issues surrounding the use of			
technology in P-12 schools and assist teachers in applying that understanding in their practice. Edu	cational technology facilitators:		
TF-VI Performance Indicators & Tasks	Links to Evidence that Standard has been met: Artifacts, Performance Data		
TF-VI.A. Model and teach legal and ethical practice related to technology use. Candidates:			
<ol> <li>Develop strategies and provide professional development at the school/classroom level for teaching social, ethical, and legal issues and responsible use of technology.</li> </ol>			
<ol><li>Assist others in summarizing copyright laws related to use of images, music, video, and other digital resources in varying formats.</li></ol>			
TF-VI.B. Apply technology resources to enable and empower learners with diverse backgrounds, charac	teristics, and abilities. Candidates:		
<ol> <li>Assist teachers in selecting and applying appropriate technology resources to enable and empower learners with diverse backgrounds, characteristics, and abilities.</li> </ol>			
<ol><li>Identify, classify, and recommend adaptive /assistive hardware and software for students and teachers with special needs and assist in procurement and implementation.</li></ol>			
TF-VI.C. Identify and use technology resources that affirm diversity. Candidates:			
<ol> <li>Assist teachers in selecting and applying appropriate technology resources to affirm diversity and address cultural and language differences.</li> </ol>			
TF-VI.D. Promote safe and healthy use of technology resources. Candidates:			
<ol> <li>Assist teachers in selecting and applying appropriate technology resources to promote safe and healthy use of technology.</li> </ol>			
TF-VI.E. Facilitate equitable access to technology resources for all students. Candidates:			
<ol> <li>Recommend policies and implement school/classroom strategies for achieving equitable access to technology resources for all students and teachers.</li> </ol>			

Technology Facilitation Standard VII. (TF-VII)			
Procedures, Policies, Planning, and Budgeting for Technology Environments. Educational technology	hnology facilitators promote the development and implementation		
of technology infrastructure, procedures, policies, plans, and budgets for P-12 schools. Educational technology facilitators:			
TF-VII Performance Indicators & Tasks	Links to Evidence that Standard has been met: Artifacts, Performance Data		
TF-VII.A. Use the school technology facilities and resources to implement classroom instruction. Candie	dates:		
<ol> <li>Use plans to configure software/computer/technology systems and related peripherals in laboratory,</li> </ol>			
classroom cluster, and other appropriate instructional arrangements.			
<ol><li>Use local mass storage devices and media to store and retrieve information and resources.</li></ol>			
<ol><li>Discuss issues related to selecting, installing, and maintaining wide area networks (WAN) for school</li></ol>			
districts.			
<ol><li>Model integration of software used in classroom and administrative settings including productivity</li></ol>			
tools, information access/telecommunication tools, multimedia/hypermedia tools, school management			
tools, evaluation/portfolio tools, and computer-based instruction.			
<ol><li>Utilize methods of installation, maintenance, inventory, and management of software libraries.</li></ol>			
6. Use and apply strategies for troubleshooting and maintaining various hardware/software configurations			
found in school settings.			
<ol><li>Use network software packages used to operate a computer network system</li></ol>			
<ol><li>Work with technology support personnel to maximize the use of technology resources by</li></ol>			
administrators, teachers, and students to improve student learning.			
TF-VII.B. Follow procedures and guidelines used in planning and purchasing technology resources. Car	ndidates:		

TF-VII Performance Indicators & Tasks	Links to Evidence that Standard has been met: Artifacts, Performance Data
<ol> <li>Identify instructional software to support and enhance the school curriculum and develop recommendations for purchase.</li> </ol>	
<ol><li>Discuss and apply guidelines for budget planning and management procedures related to educational computing and technology facilities and resources.</li></ol>	
<ol><li>Discuss and apply procedures related to troubleshooting and preventive maintenance on technology infrastructure.</li></ol>	
<ol><li>Apply current information involving facilities planning issues and computer related technologies.</li></ol>	
<ol><li>Suggest policies and procedures concerning staging, scheduling, and security for managing</li></ol>	
computers/technology in a variety of school/laboratory/classroom settings.	
Use distance and online learning facilities.	
7. Describe and identify recommended specifications for purchasing technology systems in school	
settings.	
TF-VII.C. Participate in professional development opportunities related to management of school facilities	es, technology resources, and purchases. Candidates:
<ol> <li>Support technology professional development at the building/school level utilizing adult learning theory.</li> </ol>	

Technology Facilitation Standard VIII. (TF-VIII)	
Leadership and Vision. Educational technology facilitators will contribute to the shared vision for o	campus integration of technology and foster an environment and
culture conducive to the realization of the vision. Educational technology facilitators:	
TF-VIII Performance Indicators & Tasks	Links to Evidence that Standard has been met: Artifacts, Performance Data
TF-VIII.A. Use the school technology facilities and resources to implement classroom instruction. Cand	idates:
Discuss and evaluate current research in educational technology.	
TF-VIII.B. Apply strategies for and knowledge of issues related to managing the change process in scho	ols. Candidates:
Discuss the history of technology use in schools.	
TF-VIII.C. Apply effective group process skills. Candidates:	
1. Discuss the rationale for forming school partnerships to support technology integration and examine an existing partnership within a school setting.	
TF-VIII.D. Lead in the development and evaluation of district technology planning and implementation.	Candidates:
Participate in cooperative group processes and identify the processes that were effective.	
Conduct an evaluation of a school technology environment.	
Identify and discuss national, state, and local standards for integrating technology in the school environment.	
4. Describe curriculum activities or performances that meet national, state, and local technology	
standards.	
5. Discuss issues related to developing a school technology plan.	
<ol><li>Discuss the elements of and strategies for developing a technology strategic plan.</li></ol>	
<ol><li>Examine issues related to hardware and software acquisition and management.</li></ol>	
TF-VIII.E. Engage in supervised field-based experiences with accomplished technology facilitators and/o	or directors. Candidates:
<ol> <li>Examine components needed for effective field-based experiences in instructional program development, professional development, facility and resource management, WAN/LAN/wireless systems, or managing change related to technology use in school based settings.</li> </ol>	

#### **SUPPORTING EXPLANATION - Technology Facilitation (TF) Standards**

Standards for the Technology Facilitation Program are designed to communicate expectations for the performance of candidates who will serve as building/campus-level Technology Facilitators whose major responsibility will be to help classroom teachers apply technology to support student learning. This responsibility takes many forms within the varying environments across educational systems.

The TF program standards are aligned with the six National Educational Technology Standards for Teachers, but extend the performance expectations of each candidate to reflect preparation for serving as mentor, coordinator, or technology integration specialist, assisting the teachers in their efforts to support student learning and professional growth with technology.

#### TECHNOLOGY FACILITATION (TF) PROGRAM RUBRIC

	<b>Standard TF-I. Technology Operations and Concepts.</b> Educational technology facilitators demonstrate an in-depth understanding of technology operations and concepts. Educational technology facilitators:			
Performance Indicator	Approaches Standard	Meets Standard	Exceeds Standard	
A. Demonstrate Teachers). Ca		related to technology (as described in the ISTE National	Educational Technology Standards for	
TF-I.A.1	Make appropriate choices about technology systems, resources, and services that are aligned with district and state standards.	Assist teachers in the ongoing development of knowledge, skills, and understanding of technology systems, resources, and services that are aligned with district and state technology plans.	Conduct needs assessment to determine baseline data on teachers' knowledge, skills, and understanding of concepts related to technology.	
TF-I.A.2	Demonstrate an awareness of knowledge and skills related to technology concepts.	Provide assistance to teachers in identifying technology systems, resources, and services to meet specific learning needs.	Evaluate the effective-ness of modeling used to demonstrate teachers' knowledge, skills, and under-standing of concepts related to technology.	
B. Demonstrat	e continual growth in technology knowledge and sk	ills to stay abreast of current and emerging technologies.	. Candidates:	
TF-I.B.1	Identify capabilities and limitations of current and emerging technology resources and assess the potential of these systems and services to address personal, lifelong learning, and workplace needs.	Model appropriate strategies essential to continued growth and development of the understanding of technology operations and concepts.	Evaluate the effectiveness of modeling appropriate strategies essential to continued growth and development of the understanding of technology operations and concepts.	

Standard TF-II. Planning and Designing Learning Environments and Experiences. Educational technology facilitators plan, design, and model effective				
learning envir	learning environments and multiple experiences supported by technology. Educational technology facilitators:			
Performance	Approaches	Meets	Exceeds	
Indicator	Standard	Standard	Standard	
A. Design dev	elopmentally appropriate learning opportunities that	t apply technology-enhanced instructional strategies to s	support the diverse needs of learners.	
Candidates:				
TF-II.A.1	Arrange equitable access to appropriate technology	Provide resources and feedback to teachers as they	Model the creation of developmentally appropriate	
	resources that enable students to engage	create developmentally appropriate curriculum units	curriculum units that use technology.	
	successfully in learning activities across	that use technology.		
	subject/content areas and grade levels.			
TF-II.A.2	Plan for, implement, and evaluate the management	Consult with teachers as they design methods and	Model methods and strategies for teaching	
	of student use of technology resources to support	strategies for teaching computer/technology	computer/technology concepts and skills within	
	the diverse needs of learners including adaptive and	concepts and skills within the context of classroom	the context of classroom learning.	
	assistive technologies.	learning.		
TF-II.A.3	Demonstrate an awareness of technology resources	Assist teachers as they use technology resources	Model strategies to support the diverse needs of	
	and strategies to support the diverse needs of learn-	and strategies to support the diverse needs of learn-	learners including adaptive and assistive techno-	
	ers including adaptive and assistive technologies.	ers including adaptive and assistive technologies.	logies and disseminate information to teachers.	
B. Apply curre	B. Apply current research on teaching and learning with technology when planning learning environments and experiences. Candidates:			
TF-II.B.1	Engage in ongoing planning of lesson sequences	Assist teachers as they apply current research on	Model strategies reflecting current research on	
	that effectively integrate technology resources and	teaching and learning with technology when planning	teaching and learning with technology when	
	are consistent with current best practices for	learning environments and experiences.	planning learning environments and experiences.	
	integrating the learning of subject matter and student			
	technology standards.			

Performance Indicator	Approaches Standard	Meets Standard	Exceeds Standard	
C. Identify and	locate technology resources and evaluate them for	accuracy and suitability. Candidates:		
TF-II.C.1	Demonstrate an awareness of technology systems, resources, and services that are aligned with district and state standards.	Assist teachers as they identify and locate technology resources and evaluate them for accuracy and suitability based on district and state standards.	Model the use of technology resources reflecting district and state standards.	
TF-II.C.2	Make appropriate choices about technology systems, resources, and services that are aligned with district and state standards.	Model technology integration using resources that reflect content standards.	Create professional development lessons integrating technology resources that reflect content standards.	
D. Plan for the	management of technology resources within the co	ntext of learning activities. Candidates:		
TF-II.D.1	Engage in ongoing planning of lesson sequences that assure the management of technology resources within the context of learning activities.	Provide teachers with options for the management of technology resources within the context of learning activities.	Model the use of technology resources within the context of learning activities.	
E. Plan strateg	ies to manage student learning in a technology-enh	anced environment. Candidates:		
TF-II.E.1	Engage in ongoing planning of lesson sequences that manage student learning in a technology-enhanced environment.	Provide teachers with a variety of strategies to use to manage student learning in a technology-enhanced environment and support them as they implement the strategies.	Model a variety of strategies to manage student learning in a technology-enhanced environment and support the teachers as they implement the strategies.	
F. Identify and	F. Identify and apply instructional design principles associated with the development of technology resources. Candidates:			
TF-II.F.1	Plan and implement technology-based learning activities that include an understanding of instructional design principles.	Assist teachers as they identify and apply instructional design principles associated with the development of technology resources.	Model the use of appropriate instructional design principles associated with the development of technology resources.	

	<b>Standard TF-III. Teaching, Learning, and the Curriculum.</b> Educational technology facilitators apply and implement curriculum plans that include methods and strategies for utilizing technology to maximize student learning. Educational technology facilitators:			
Performance Indicator	Approaches Standard	Meets Standard	Exceeds Standard	
A. Facilitate ted	chnology-enhanced experiences that address conte	nt standards and student technology standards. Candida	tes:	
TF-III.A.1	Demonstrate an awareness of methods and strategies for teaching concepts and skills that support integration of technology productivity tools (refer to NETS for Students).	Use methods and strategies for teaching concepts and skills that support integration of technology productivity tools (refer to NETS for Students).	Analyze methods and facilitate strategies for teaching concepts and skills that support integration of technology productivity tools (refer to NETS for Students).	
TF-III.A.2	Demonstrate an awareness of methods and strategies for teaching concepts and skills that support integration of communication tools (refer to NETS for Students).	Use and apply major research findings and trends related to the use of technology in education to support integration throughout the curriculum.	Summarize major research findings and trends related to the use of technology in education to support integration throughout the curriculum.	
TF-III.A.3	Demonstrate an awareness of methods and strategies for teaching concepts and skills that support integration of research tools (refer to NETS for Students).	Use methods and strategies for teaching concepts and skills that support integration of research tools (refer to NETS for Students).	Analyze methods and facilitate teachers as they use strategies for teaching concepts and skills that support integration of research tools (refer to NETS for Students).	
TF-III.A.4	Demonstrate an awareness of methods and strategies for teaching concepts and skills that support integration of problem solving/ decision-making tools (refer to NETS for Students).	Use methods and strategies for teaching concepts and skills that support integration of problem solving/ decision-making tools (refer to NETS for Students).	Analyze methods and facilitate strategies for teaching concepts and skills that support integration of problem solving/ decision-making tools (refer to NETS for Students).	

Performance	Approaches	Meets	Exceeds
Indicator TF-III.A.5	Standard  Demonstrate an awareness of methods and strategies for teaching concepts and skills that	Standard Use methods and strategies for teaching concepts and skills that support use of media-based tools such	Standard  Analyze methods and facilitate strategies for teaching concepts and skills that support use of
	support use of media-based tools such as television, audio, print media, and graphics.	as television, audio, print media, and graphics.	media-based tools such as television, audio, print media, and graphics.
TF-III.A.6	Demonstrate an awareness of methods and strategies for teaching concepts and skills that support use of distance learning systems appropriate in a school environment.	Use and describe methods and strategies for teaching concepts and skills that support use of distance learning systems appropriate in a school environment.	Analyze methods and strategies for teaching concepts and skills that support use of distance learning systems appropriate in a school environment.
TF-III.A.7	Demonstrate an awareness of methods for teaching concepts and skills that support use of web-based and non web-based authoring tools in a school environment.	Use methods for teaching concepts and skills that support use of web-based and non web-based authoring tools in a school environment.	Analyze methods for teaching concepts and skills that support use of web-based and non web-based authoring tools in a school environment.
B. Use techno	logy to support learner-centered strategies that add		
TF-III.B.1	Demonstrate an awareness of methods and strategies for integrating technology resources that support the needs of diverse learners including adaptive and assistive technology.	Use methods and strategies for integrating technology resources that support the needs of diverse learners including adaptive and assistive technology.	Analyze methods and strategies for integrating technology resources that support the needs of diverse learners including adaptive and assistive technology.
C. Apply techr	ology to demonstrate students' higher order skills a	and creativity. Candidates:	<u> </u>
TF-III.C.1	Demonstrate an awareness of methods and strategies for teaching problem solving principles and skills using technology resources.	Use methods and facilitate strategies for teaching problem solving principles and skills using technology resources.	Analyze methods and facilitate strategies for teaching problem solving principles and skills using technology resources.
D. Manage stu	dent learning activities in a technology-enhanced en	vironment. Candidates:	
TF-III.D.1	Develop an awareness of methods and classroom management strategies for teaching technology concepts and skills in individual, small group, classroom, and/or lab settings.	Use methods and classroom management strategies for teaching technology concepts and skills in individual, small group, classroom, and/or lab settings.	Analyze methods and classroom management strategies for teaching technology concepts and skills in individual, small group, classroom, and/or lab settings.
E. Use current	research and district/region/state/national content a	and technology standards to build lessons and units of in	struction. Candidates:
TF-III.E.1	Develop an awareness of curricular methods and strategies that are aligned with district/region/state/national content and technology standards.	Describe and identify curricular methods and strategies that are aligned with district/region/state/national content and technology standards.	Disseminate information regarding curricular methods and strategies that are aligned with district/region/state/ national content and technology standards.
TF-III.E.2	Develop an awareness of major research findings and trends related to the use of technology in education to support integration throughout the curriculum.	Use major research findings and trends related to the use of technology in education to support integration throughout the curriculum.	Summarize and disseminate major research findings and trends related to the use of technology in education to support integration throughout the curriculum.

Standard TF	Standard TF-IV. Assessment and Evaluation. Educational technology facilitators apply technology to facilitate a variety of effective assessment and evaluation			
strategies. E	strategies. Educational technology facilitators:			
Performance Indicator	Approaches Standard	Meets Standard	Exceeds Standard	
A. Apply techr	ology in assessing student learning of subject matt	er using a variety of assessment techniques. Candidates		
TF-IV.A.1	Develop an awareness of technology tools to collect, analyze, interpret, represent, and communicate data for the purposes of instructional planning and school improvement.	Model the use of technology tools to assess student learning of subject matter using a variety of assessment techniques.	Analyze methods and facilitate the use of strategies to assess student learning of subject matter using a variety of assessment techniques.	
TF-IV.A.2	Use results from assessment measures to improved instructional planning, management, and implementation of learning strategies.	Assist teachers in using technology to improve learning and instruction through the evaluation and assessment of artifacts and data.	Analyze methods and facilitate the use of strategies to improve learning and instruction through the evaluation and assessment of artifacts and data.	
B. Use techno Candidates:	logy resources to collect and analyze data, interpret	results, and communicate findings to improve instruction	nal practice and maximize student learning.	
TF-IV.B.1	Implement a variety of instructional technology strategies and grouping strategies that include appropriate embedded assessment for meeting the diverse needs of learners.	Guide teachers as they use technology resources to collect and analyze data, interpret results, and communicate findings to improve instructional practice and maximize student learning.	Examine the validity and reliability of technology resources to collect and analyze data, interpret results, and communicate findings to improve instructional practice and maximize student learning.	
C. Apply multi	ple methods of evaluation to determine students' ap	propriate use of technology resources for learning, comn	nunication, and productivity. Candidates:	
TF-IV.C.1	Guide students in applying self and peer assessment tools to critique student-created technology products and the process used to create the products.	Assist teachers in using recommended evaluation strategies for improving students' use of technology resources for learning, communication, and productivity.	Recommend evaluation strategies for improving students' use of technology resources for learning, communication, and productivity.	
TF-IV.C.2	Participate in a research project that includes evaluating the use of a specific technology in a P-12 environment.	Examine and apply the results of a research project that includes evaluating the use of a specific technology in a P-12 environment.	Analyze data from a research project that includes evaluating the use of a specific technology in a P-12 environment.	

	Standard TF-V. Productivity and Professional Practice. Educational technology facilitators apply technology to enhance and improve personal productivity and professional practice. Educational technology facilitators:			
Performance Indicator	Approaches Standard	Meets Standard	Exceeds Standard	
A. Use techno	logy resources to engage in ongoing professional d	evelopment and lifelong learning. Candidates:	•	
TF-V.A.1	Participate in professional development activities and professional technology organizations to support ongoing professional growth related to technology.	Identify resources and participate in professional development activities and professional technology organizations to support ongoing professional growth related to technology.	Use resources and professional development activities available from professional technology organizations to support ongoing professional growth related to technology.	
TF-V.A.2	Develop an awareness of district-wide policies for the professional growth opportunities for staff, faculty, and administrators.	Disseminate information on district-wide policies for professional growth opportunities for staff, faculty, and administrators.	Implement policies that support district-wide professional growth opportunities for staff, faculty, and administrators.	

Performance	Approaches	Meets	Exceeds
Indicator	Standard	Standard	Standard
		ke informed decisions regarding the use of technology in	
TF-V.B.1	Reflect on professional practice to make informed decisions regarding the use of technology in support of student learning.	Continually evaluate and reflect on professional practice to make informed decisions regarding the use of technology in support of student learning.	Continually evaluate professional practice to make informed decisions regarding the use of technology in support of student learning and disseminate findings to district administrators.
C. Apply techr	nology to increase productivity. Candidates:		
TF-V.C.1	Model features of word processing, desktop publishing, graphics programs, and utilities to demonstrate professional products.	Model advanced features of word processing, desktop publishing, graphics programs, and utilities to develop professional products.	Model the integration of advanced features of word processing, desktop publishing, graphics programs, and utilities to demonstrate professional products.
TF-V.C.2	Locate, select, capture, and integrate video and digital images, in varying formats for use in presentations, publications and/or other products.	Assist others in locating, selecting, capturing, and integrating video and digital images, in varying formats for use in presentations, publications, and/or other products.	Facilitate activities to help others in locating, selecting, capturing, and integrating video and digital images, in varying formats for use in presentations, publications and/or other products.
TF-V.C.3	Use specific-purpose electronic devices (such as graphing calculators, languages translators, scientific probeware, or electronic thesaurus) in content areas.	Demonstrate the use of specific-purpose electronic devices (such as graphing calculators, language translators, scientific probeware, or electronic thesaurus) in content areas.	Facilitate the use of specific-purpose electronic devices (such as graphing calculators, languages translators, scientific probeware, or electronic thesaurus) in content areas.
TF-V.C.4	Develop an awareness of several distance-learning systems to support personal/ professional development.	Use a variety of distance learning systems and use at least one to support personal and professional development.	Use a variety of distance learning systems to support personal/professional development.
TF-V.C.5	Develop an awareness of instructional design principles and its importance in the development of hypermedia and multimedia products.	Use instructional design principles to develop hypermedia and multimedia products to support personal and professional development.	Apply instructional design principles to demonstrate hypermedia/multimedia products to support professional development.
TF-V.C.6	Describe appropriate tools for communicating concepts, conducting research, and solving problems for an intended audience and purpose.	Select appropriate tools for communicating concepts, conducting research, and solving problems for an intended audience and purpose.	Model the use of appropriate tools for communicating concepts, conducting research, and solving problems for an intended audience and purpose.
TF-V.C.7	Develop an awareness of examples of emerging programming, authoring or problem solving environments that support personal/professional development.	Use examples of emerging programming, authoring, or problem solving environments that support personal and professional development.	Use examples of emerging programming, authoring or problem solving environments that support personal/professional development.
TF-V.C.8	Identify preferences and defaults of operating systems and productivity tool programs that can be set to support personal and professional development.	Set and manipulate preferences, defaults and other selectable features of operating systems and productivity tool programs commonly found in P-12 schools.	Set and manipulate preferences and defaults of operating systems and productivity tool programs, and troubleshoot problems associated with their operation.
D. Use technology to communicate and collaborate with peers, parents, and the larger community in order to nurture student learning. Candidates:			
TF-V.D.1	Use telecommunications tools and resources for information sharing, remote information access, and multimedia/hypermedia publishing in order to nurture student learning.	Model the use of telecommunications tools and resources for information sharing, remote information access, and multimedia/hypermedia publishing in order to nurture student learning.	Stay abreast of current telecommunications tools and resources for information sharing, remote information access, and multimedia/hypermedia publishing in order to nurture student learning.
TF-V.D.2	Communicate with colleagues about current research to support instruction, using electronic mail and web browsers.	Communicate with colleagues and discuss current research to support instruction, using applications including electronic mail, online conferencing and web browsers.	Communicate with colleagues and apply current research to support instruction, using applications including electronic mail, online conferencing and web browsers.

Performance Indicator	Approaches Standard	Meets Standard	Exceeds Standard
TF-V.D.3	Participate in online collaborative curricular projects and team activities.	Participate in online collaborative curricular projects and team activities to build bodies of knowledge around specific topics.	Investigate and disseminate online collaborative curricular projects and team activities to build bodies of knowledge around specific topics.
TF-V.D.4	Design, demonstrate and maintain Web pages and sites that support personal productivity.	Design and maintain Web pages and sites that support communication between the school and community.	Design, maintain, and facilitate the development of Web pages and sites that support communication between teachers, school, and community.

	Standard TF-VI. Social, Ethical, Legal, and Human Issues. Educational technology facilitators understand the social, ethical, legal, and human issues			
	surrounding the use of technology in P-12 schools and assist teachers in applying that understanding in their practice. Educational technology facilitators:			
Performance Indicator	Approaches Standard	Meets Standard	Exceeds Standard	
A. Model and t	teach legal and ethical practice related to technology	vuse. Candidates:		
TF-VI.A.1	Demonstrate and advocate for legal and ethical behaviors among students, colleagues, and community members regarding the use of technology and information.	Develop strategies and provide professional development at the school/classroom level for teaching social, ethical, and legal issues and responsible use of technology.	Analyze rules, policies, and procedures to support the legal and ethical use of technology.	
TF-VI.A.2	Summarize copyright laws related to use of images, music, video, and other digital resources in varying formats.	Assist others in summarizing copyright laws related to use of images, music, video, and other digital resources in varying formats.	Plan activities that focus on copyright laws related to use of images, music, video, and other digital resources in varying formats.	
B. Apply techr	nology resources to enable and empower learners w	ith diverse backgrounds, characteristics, and abilities. Ca	andidates:	
TF-VI.B.1	Facilitate students' use of technology that addresses their social needs and cultural identity and promotes their interaction with the global community.	Assist teachers in selecting and applying appropriate technology resources to enable and empower learners with diverse backgrounds, characteristics, and abilities.	Analyze and recommend appropriate technology resources to enable and empower learners with diverse backgrounds, characteristics, and abilities.	
TF-VI.B.2	Facilitate students' use of technology that addresses their special needs.	Identify, classify, and recommend adaptive/assistive hardware and software for students and teachers with special needs and assist in procurement and implementation.	Analyze and recommend appropriate adaptive/assistive hardware and software for students and teachers with special needs and assist in procurement and implementation.	
C. Identify and	I use technology resources that affirm diversity. Can	didates:		
TF-VI.C.1	Identify capabilities and limitations of current and emerging technology resources that affirm diversity.	Assist teachers in selecting and applying appropriate technology resources to affirm diversity and address cultural and language differences.	Recommend appropriate technology resources to affirm diversity and address cultural and language differences.	
D. Promote sa	fe and healthy use of technology resources. Candid	ates:		
TF-VI.D.1	Enforce classroom procedures that guide students' safe and healthy use of technology and that comply with legal and professional responsibilities.	Assist teachers in selecting and applying appropriate technology resources to promote safe and healthy use of technology.	Recommend appropriate technology resources to promote safe and healthy use of technology.	
E. Facilitate equitable access to technology resources for all students. Candidates:				
TF-VI.E.1	Advocate for equal access to technology for all students and teachers.	Develop a summary of effective school policies and classroom management strategies for achieving equitable access to technology resources for all students and teachers	Conduct research to determine effective strategies for achieving equitable access to technology resources for all students and teachers.	

Standard TF-VII. Procedures, Policies, Planning, and Budgeting for Technology Environments. Educational technology facilitators promote the development				
and implementation of technology infrastructure, procedures, policies, plans, and budgets for P-12 schools. Educational technology facilitators:				
Performance Indicator	Approaches Standard	Meets Standard	Exceeds Standard	
A. Use the sch	A. Use the school technology facilities and resources to implement classroom instruction. Candidates:			
TF-VII.A.1	Identify plans to configure computer/technology systems and related peripherals in laboratory, classroom cluster, and other appropriate instructional arrangements.	Use plans to configure software/computer/ technology systems and related peripherals in laboratory, classroom cluster, and other appropriate instructional arrangements.	Stay abreast of current developments to configure computer/technology systems and related peripherals in laboratory, classroom cluster, and other appropriate instructional arrangements.	
TF-VII.A.2	Identify local mass storage devices and media to store and retrieve information and resources.	Use local mass storage devices and media to store and retrieve information and resources.	Stay abreast of local mass storage devices and media to store and retrieve information and resources.	
TF-VII.A.3	Identify issues related to selecting, installing, and maintaining wide area networks (WAN) for school districts.	Discuss issues related to selecting, installing, and maintaining wide area networks (WAN) for school districts.	Differentiate among issues related to selecting, installing, and maintaining wide area networks (WAN) for school districts, and facilitate integration of technology infrastructure with the WAN.	
TF-VII.A.4	Use software in classroom and administrative settings including productivity tools, information access /telecommunication tools, multimedia/ hypermedia tools, school management tools, evaluation/portfolio tools, and computer-based instruction.	Model integration of software used in classroom and administrative settings including productivity tools, information access/ telecommunication tools, multimedia/ hypermedia tools, school management tools, evaluation/portfolio tools, and computer-based instruction.	Analyze software used in classroom and administrative settings including productivity tools, information access /telecommunication tools, multimedia/hypermedia tools, school management tools, evaluation/portfolio tools, and computer-based instruction.	
TF-VII.A.5	Identify methods of installation, maintenance, inventory, and management of software libraries.	Utilize methods of installation, maintenance, inventory, and management of software libraries.	Analyze and critique methods of installation, maintenance, inventory, and management of software libraries.	
TF-VII.A.6	Develop an awareness of strategies for troubleshooting and maintaining various hardware/software configurations found in school settings.	Use and apply strategies for troubleshooting and maintaining various hardware/software configurations found in school settings.	Stay abreast of current strategies for troubleshooting and maintaining various hardware/software configurations found in school settings.	
TF-VII.A.7	Develop an awareness of network software packages used to operate a computer network system.	Utilize network software packages used to operate a computer network system.	Evaluate network software packages used to operate a computer network system and/or local area network (LAN).	
TF-VII.A.8	Develop an awareness of the important roles for technology support personnel to assume to empower teachers and students to maximize technology resources to enhance student learning	Work with technology support personnel to maximize the use of technology resources by administrators, teachers, and students to improve student learning.	Identify areas where support personnel are needed to manage and enhance use of technology resources in the school by administrators, teachers and students.	
B. Follow procedures and guidelines used in planning and purchasing technology resources. Candidates:				
TF-VII.B.1	Develop an awareness of instructional software to support and enhance the school curriculum and demonstrate recommendations for purchase.	Identify instructional software to support and enhance the school curriculum and develop recommendations for purchase.	Evaluate instructional software to support and enhance the school curriculum and demonstrate recommendations for purchase.	
TF-VII.B.2	Develop an awareness of guidelines for budget planning and management procedures related to educational computing and technology facilities and resources.	Discuss and apply guidelines for budget planning and management procedures related to educational computing and technology facilities and resources.	Analyze guidelines for budget planning and management procedures related to educational computing and technology facilities and resources.	
Performance Indicator	Approaches Standard	Meets Standard	Exceeds Standard	
TF-VII.B.3	Develop an awareness of procedures related to	Discuss and apply procedures related to	Stay abreast of current procedures related to	

	troubleshooting and preventive maintenance on technology infrastructure.	troubleshooting and preventive maintenance on technology infrastructure.	troubleshooting and preventive maintenance on technology infrastructure.
TF-VII.B.4	Develop an awareness of current information involving facilities planning issues and computer related technologies.	Apply current information involving facilities planning issues and computer related technologies.	Analyze and apply current information involving facilities planning issues and computer related technologies.
TF-VII.B.5	Develop an awareness of policies and procedures concerning staging, scheduling, and security for managing computers/technology in a variety of school/laboratory/classroom settings.	Suggest policies and procedures concerning staging, scheduling, and security for managing computers/technology in a variety of school/laboratory/classroom settings.	Apply policies and procedures concerning staging, scheduling, and security for managing computers/technology in a variety of school/laboratory/classroom settings.
TF-VII.B.6	Develop an awareness of distance learning facilities.	Use distance and online learning facilities.	Use distance and online learning facilities routinely.
TF-VII.B.7	Develop an awareness of recommended specifications for purchasing technology systems in school settings.	Describe and identify recommended specifications for purchasing technology systems in school settings.	Research specifications for purchasing technology systems.
C. Participate	in professional development opportunities related to	management of school facilities, technology resources,	and purchases. Candidates:
TF-VII.C.1	Identify opportunities for technology professional development at the building/school level utilizing adult learning theory	Support technology professional development at the building/school level utilizing adult learning theory.	Design and plan technology professional development at the building/school level utilizing adult learning theory.

Standard TF-VIII. Leadership and Vision. Educational technology facilitators will contribute to the shared vision for campus integration of technology and foster			
an environment and culture conducive to the realization of the vision. Educational technology facilitators:			
Performance Indicator	Approaches Standard	Meets Standard	Exceeds Standard
A. Utilize scho	ol technology facilities and resources to implement	classroom instruction. Candidates:	
TF-VIII.A.1	Develop an awareness of current research in educational technology.	Discuss and evaluate current research in educational technology.	Locate and disseminate current research in educational technology.
B. Apply strate	egies for and knowledge of issues related to managi	ng the change process in schools. Candidates:	
TF-VIII.B.1	Develop an awareness of the history of technology use in schools.	Discuss the history of technology use in schools.	Develop and implement activities that focus on the history of technology use in schools.
C. Apply effec	tive group process skills. Candidates:		-
TF-VIII.C.1	Develop an awareness of the importance of forming school partnerships to support technology integration and examine an existing partnership within a school setting.	Discuss the rationale for forming school partnerships to support technology integration and examine an existing partnership within a school setting.	Provide information on the benefits of forming school partnerships to support technology integration and locate an existing partnership within a school setting.
D. Lead in the	development and evaluation of district technology p	lanning and implementation. Candidates:	•
TF-VIII.D.1	Develop an awareness of the importance of using cooperative group processes.	Participate in cooperative group processes and identify the processes that were effective.	Disseminate information on effective cooperative group processes.
TF-VIII.D.2	Develop an awareness of the importance of the school technology environment.	Conduct an evaluation of a school technology environment.	Create an evaluation instrument to use to conduct an evaluation of a school technology environment.
TF-VIII.D.3	Recognize the importance of national, state, and local standards for integrating technology in the school environment.	Identify and discuss national, state, and local standards for integrating technology in the school environment.	Examine the impact of national, state, and local standards for integrating technology in the school environment.
Performance Indicator	Approaches Standard	Meets Standard	Exceeds Standard
TF-VIII.D.4	Examine curriculum activities or performances that meet national, state, and local technology standards	Describe curriculum activities or performances that meet national, state, and local technology standards.	Examine the impact of curriculum activities or performances that meet national, state, and local

			technology standards.
TF-VIII.D.5	Develop an awareness of the issues related to developing a school technology plan.	Discuss issues related to developing a school technology plan.	Determine essential components of a school technology plan.
TF-VIII.D.7	Develop an awareness of the issues related to hardware and software acquisition and management.	Examine issues related to hardware and software acquisition and management.	Determine strategies and procedures needed for resource acquisition and management of technology-based systems including hardware and software.
E. Engage in s	E. Engage in supervised field-based experiences with accomplished technology facilitators and/or directors. Candidates:		
TF-VIII.E.1	Develop an awareness of the components needed for effective field-based experiences in instructional program development, professional development, facility and resource management, WAN/LAN/wireless systems, or managing change related to technology use in school-based settings.	Examine components needed for effective field-based experiences in instructional program development, professional development, facility and resource management, WAN/LAN/wireless systems, or managing change related to technology use in school-based settings.	Determine components needed for effective field-based experiences in instructional program development, professional development, facility and resource management, WAN/LAN/wireless systems, or managing change related to technology use in school based settings.

#### **SUPPORTING EXPLANATION - Technology Facilitation (TF) Standards and Rubrics**

Units preparing candidates for this program may collect artifacts demonstrating candidates' performances in addressing the program standards, assess performance by evaluating artifacts using the above ISTE/NCATE Technology Facilitation rubrics and aggregate the performance data collected to provide program-level data. The standards and rubrics should help faculty to identify the kinds of experiences they provide in their courses and whether or not those experiences generate candidate performance that approaches, meets, or exceeds the standards. Each major assignment or experience should be planned to address the performance indicators at levels appropriate to prepare candidates for the essential benchmark assessments. Candidates should be aware of the level of expectations for their performance on each assignment and that their performances will be measured against the "meets standard" performance level of the rubric.

Rubrics, observation tools, self assessments, and test scores with quantifiable performance assessment ratings are often used to collect performance data that can be used to measure individual performance and be aggregated as evidence of program-level performance. When artifacts are collected in a portfolio, it is preferred to have that portfolio available for online review to substantiate the quality of work of your candidates. The performance artifacts used as evidence in the matrix should be selective, representing benchmark assessment points.

## International Society for Technology in Education Educational Computing and Technology Programs: Technology Leadership Advanced Program

- 1) Standards
- 2) Rubrics
- 3) Supporting Explanation

# INTERNATIONAL SOCIETY FOR TECHNOLOGY IN EDUCATION (ISTE) Educational Computing and Technology Proposed Standards for Technology Leadership Advanced Program

#### INTRODUCTION

#### Technology Leadership (TL) -- Advanced Program Guidelines

Educational Computing and Technology Leadership (TL) advanced programs meeting ISTE standards will prepare candidates to serve as technology directors, coordinators, or specialists. Special preparation in computing systems, facilities planning and management, instructional program development, staff development, and other advanced applications of technology to support student learning and assessment will prepare candidates to serve in technology-related leadership positions at district, regional, and/or state levels.

The International Society for Technology in Education recognizes that educational computing and technology foundations are essential for all teachers. ISTE also acknowledges educational computing and technology specialty areas beyond these foundations and has established program standards for initial and advanced programs. These program standards will assist teacher education units, and professional organizations and agencies in understanding and evaluating the educational preparation needed for specialization within the field.

#### Who should complete the Educational Computing and Technology Advanced program standards?

This document contains program standards for the Educational Computing and Technology Leadership advanced program designed to prepare candidates to serve as technology directors, coordinators, or specialists at district, regional, and/or state levels. Institutions that offer this program should respond to the corresponding program standards.

TECHNOLOGY LEADERSHIP (TL) ADVANCED PROGRAM STANDARDS MATRIX

TEOTHOLOGI LEADERSHIF (TE) ADVANCED FROGRAM STANDARDS MATRIX		
Prerequisite Standards. Technology Facilitation Standards		
Educational technology leadership candidates demonstrate that they have met the Technology Facilitation Standards prior to full admission to the Technology		
Leadership Program.		
TL-I Performance Indicators & Tasks	Links to Evidence that Standard has been met: Artifacts, Performance Data	
Completed Technology Facilitation Matrix or Admissions Assessment Results		
Technology Leadership Standard I. (TL-I)		
Technology Operations and Concepts. Educational technology leaders demonstrate an advance	ed understanding of technology operations and concepts.	
Educational technology leaders:		
TL-I Performance Indicators & Tasks	Links to Evidence that Standard has been met: Artifacts, Performance Data	
TL-I.A. Demonstrate knowledge, skills, and understanding of concepts related to technology (as described in the ISTE National Educational Technology Standards for Teachers). Candidates:		
Identify and evaluate components needed for the continual growth of knowledge, skills, and		
understanding of concepts related to technology.		
<ol><li>Offer a variety of professional development opportunities that facilitate the ongoing development of knowledge, skills, and understanding of concepts related to technology.</li></ol>		
TL-I.B. Demonstrate continual growth in technology knowledge and skills to stay abreast of current and emerging technologies. Candidates:		
Offer a variety of professional development opportunities that facilitate the continued growth and	emerging technologies. Candidates.	
development of the understanding of technology operations and concepts.		

Technology Leadership Standard II. (TL-II)	
Planning and Designing Learning Environments and Experiences. Educational technology lead	
learning environments and experiences supported by technology at the district/state/regional level.	
TL-II. Performance Indicators & Tasks	Links to Evidence that Standard has been met: Artifacts, Performance Data
TL.II.A. Design developmentally appropriate learning opportunities that apply technology-enhanced instr Candidates:	ructional strategies to support the diverse needs of learners.
<ol> <li>Research and disseminate project-based instructional units modeling appropriate uses of technology to support learning.</li> </ol>	
<ol><li>Identify and evaluate methods and strategies for teaching computer/technology concepts and skills within the context of classroom learning and coordinate dissemination of best practices at the district/state/regional level.</li></ol>	
<ol><li>Stay abreast of current technology resources and strategies to support the diverse needs of learners including adaptive and assistive technologies and disseminate information to teachers.</li></ol>	
TL-II.B. Apply current research on teaching and learning with technology when planning learning enviror	nments and experiences. Candidates:
<ol> <li>Locate and evaluate current research on teaching and learning with technology when planning learning environments and experiences.</li> </ol>	
TL-II.C. Identify and locate technology resources and evaluate them for accuracy and suitability. Candida	ites:
Identify technology resources and evaluate them for accuracy and suitability based on the content standards.	
<ol><li>Provide ongoing appropriate professional development to disseminate the use of technology resources that reflect content standards.</li></ol>	
TL-II.D. Plan for the management of technology resources within the context of learning activities. Candid	dates:
Identify and evaluate options for the management of technology resources within the context of learning activities.	
TL-II.E. Plan strategies to manage student learning in a technology-enhanced environment. Candidates:	
<ol> <li>Continually evaluate a variety of strategies to manage student learning in a technology-enhanced environment and disseminate through professional development activities.</li> </ol>	
TL-II.F. Identify and apply instructional design principles associated with the development of technology	resources. Candidates:
<ol> <li>Identify and evaluate instructional design principles associated with the development of technology resources.</li> </ol>	
Technology Leadership Standard III. (TL-III)	
Teaching, Learning, and the Curriculum. Educational technology leaders model, design, and diss	seminate curriculum plans that include methods and strategies
for applying technology to maximize student learning. Educational technology leaders:	
TL-III Performance Indicators & Tasks	Links to Evidence that Standard has been met: Artifacts, Performance Data
TL-III.A. Facilitate technology-enhanced experiences that address content standards and student technology	logy standards. Candidates:
<ol> <li>Design methods and strategies for teaching concepts and skills that support integration of technology productivity tools (refer to NETS for Students).</li> </ol>	
<ol><li>Design methods for teaching concepts and skills that support integration of communication tools (refer to NETS for Students).</li></ol>	
TL-III Performance Indicators & Tasks	Links to Evidence that Standard has been met:

**Artifacts, Performance Data** 

TL-III Performance Indicators & Tasks	Links to Evidence that Standard has been met: Artifacts, Performance Data
<ol><li>Design methods and strategies for teaching concepts and skills that support integration of research tools (NETS refer to for Students).</li></ol>	
<ol><li>Design methods and model strategies for teaching concepts and skills that support integration of problem solving/decision-making tools (refer to NETS for Students).</li></ol>	
<ol><li>Design methods and model strategies for teaching concepts and skills that support use of media-based tools such as television, audio, print media, and graphics.</li></ol>	
<ol><li>Evaluate methods and strategies for teaching concepts and skills that support use of distance learning systems appropriate in a school environment.</li></ol>	
<ol><li>Design methods and model strategies for teaching concepts and skills that support use of web-based and non web-based authoring tools in a school environment.</li></ol>	
TL-III.B. Use technology to support learner-centered strategies that address the diverse needs of student	s. Candidates:
<ol> <li>Design methods and strategies for integrating technology resources that support the needs of diverse learners including adaptive and assistive technology.</li> </ol>	
TL-III.C. Apply technology to develop students' higher order skills and creativity. Candidates:	
<ol> <li>Design methods and model strategies for teaching hypermedia development, scripting, and/or computer programming, in a problem-solving context in the school environment.</li> </ol>	
TL-III.D. Manage student learning activities in a technology-enhanced environment. Candidates:	
<ol> <li>Design methods and model classroom management strategies for teaching technology concepts and skills used in P-12 environments.</li> </ol>	
TL-III.E. Use current research and district/region/state/national content and technology standards to build	d lessons and units of instruction. Candidates:
Disseminate curricular methods and strategies that are aligned with district/region/state/national content and technology standards.	
<ol><li>Investigate major research findings and trends related to the use of technology in education to support integration throughout the curriculum.</li></ol>	

Technology Leadership Standard IV. (TL-IV)	
Assessment and Evaluation. Educational technology leaders communicate research on the use of	of technology to implement effective assessment and
evaluation strategies. Educational technology leaders:	-
TL-IV Performance Indicators & Tasks	Links to Evidence that Standard has been met: Artifacts, Performance Data
TL-IV.A. Apply technology in assessing student learning of subject matter using a variety of assessment	techniques. Candidates:
<ol> <li>Facilitate the development of a variety of techniques to use technology to assess student learning of subject matter.</li> </ol>	
<ol><li>Provide technology resources for assessment and evaluation of artifacts and data.</li></ol>	
TL-IV.B. Use technology resources to collect and analyze data, interpret results, and communicate finding learning. Candidates:	ngs to improve instructional practice and maximize student
<ol> <li>Identify and procure technology resources to aid in analysis and interpretation of data.</li> </ol>	
TL-IV.C. Apply multiple methods of evaluation to determine students' appropriate use of technology resc Candidates:	purces for learning, communication, and productivity.
<ol> <li>Design strategies and methods for evaluating the effectiveness of technology resources for learning, communication, and productivity.</li> </ol>	
<ol><li>Conduct a research project that includes evaluating the use of a specific technology in a P-12 environment.</li></ol>	

Technology Leadership Standard V. (TL-V)	
Productivity and Professional Practice. Educational technology leaders design, develop, evaluate	e and model products created using technology resources to
improve and enhance their productivity and professional practice. Educational technology leaders:	
TL-V Performance Indicators & Tasks	Links to Evidence that Standard has been met: Artifacts, Performance Data
TL-V.A. Use technology resources to engage in ongoing professional development and lifelong learning.	Candidates:
<ol> <li>Design, prepare, and conduct professional development activities to present at the school/district level</li> </ol>	
and at professional technology conferences to support ongoing professional growth related to technology.	
2. Plan and implement policies that support district-wide professional growth opportunities for staff, faculty,	
and administrators.	
TL-V.B. Continually evaluate and reflect on professional practice to make informed decisions regarding t	he use of technology in support of student learning. Candidates:
Based on evaluations make recommendations for changes in professional practices regarding the use	
of technology in support of student learning.	
TL-V.C. Apply technology to increase productivity. Candidates:	T
Model the integration of data from multiple software applications using advanced features of	
applications such as word processing, database, spreadsheet, communication, and other tools into a	
product.	
2. Create multimedia presentations integrated with multiple types of data using advanced features of a	
presentation tool and model them to district staff using computer projection systems.  3. Document and assess field-based experiences and observations using specific-purpose electronic	
devices.	
4. Use distance learning delivery systems to conduct and provide professional development opportunities	
for students, teachers, administrators, and staff.	
Apply instructional design principles to develop and analyze substantive interactive multimedia	
computer-based instructional products.	
Design and practice strategies for testing functions and evaluating technology use effectiveness of	
instructional products that were developed using multiple technology tools.	
7. Analyze examples of emerging programming, authoring or problem solving environments that support	
personal and professional development, and make recommendations for integration at school/district	
level.	
8. Analyze and modify the features and preferences of major operating systems and/or productivity tool	
programs when developing products to solve problems	
TL-V.D. Use technology to communicate and collaborate with peers, parents, and the larger community in	n order to nurture student learning. Candidates:
<ol> <li>Model and implement the use of telecommunications tools and resources to foster and support</li> </ol>	
information sharing, remote information access, and communication between students, school staff,	
parents, and local community.	
2. Organize, coordinate, and participate in an online learning community related to the use of technology	
to support learning.	
3. Organize and coordinate online collaborative curricular projects with corresponding team activities/	
responsibilities to build bodies of knowledge around specific topics.	
4. Design, modify, maintain, and facilitate the development of Web pages and sites that support	
communication and information access between the entire school district and local/state/national/	
international communities.	

Technology Leadership Standard VI. (TL-VI)	
Social, Ethical, Legal, and Human Issues. Educational technology leaders understand the social,	ethical, legal, and human issues surrounding the use of
technology in P-12 schools and develop programs facilitating application of that understanding in pra	ctice throughout their district/ region/state. Educational
technology leaders:	ŭ ŭ
TL-VI Performance Indicators & Tasks	Links to Evidence that Standard has been met: Artifacts, Performance Data
TL-VI.A. Model and teach legal and ethical practice related to technology use. Candidates:	
Establish and communicate clear rules, policies, and procedures to support legal and ethical use of technologies at the district/ region/state levels.	
Implement a plan for documenting adherence to copyright laws.	
TL-VI.B. Apply technology resources to enable and empower learners with diverse backgrounds, character	eristics, and abilities. Candidates:
Communicate research on best practices related to applying appropriate technology resources to	
enable and empower learners with diverse backgrounds, characteristics, and abilities.	
2. Develop policies and provide professional development related to acquisition and use of appropriate	
adaptive/assistive hardware and software for students and teachers with special needs.	
TL-VI.C. Identify and use technology resources that affirm diversity. Candidates:	
Communicate research on best practices related to applying appropriate technology resources to affirm diversity and address cultural and language differences.	
TL-VI.D. Promote safe and healthy use of technology resources. Candidates:	
Communicate research and establish policies to promote safe and healthy use of technology.	
TL-VI.E. Facilitate equitable access to technology resources for all students. Candidates:	
Use research findings in establishing policy and implementation strategies to promote equitable access	
to technology resources for students and teachers.	
Technology Leadership Standard VII. (TL-VII)	
Procedures, Policies, Planning, and Budgeting for Technology Environments. Educational technology	
implementation of technology infrastructure procedures, policies, plans, and budgets for P-12 schools	
TL-VII Performance Indicators & Tasks	Links to Evidence that Standard has been met: Artifacts, Performance Data
TL-VII.A. Use the school technology facilities and resources to implement classroom instruction. Candida	ites:
<ol> <li>Develop plans to configure software/computer/technology systems and related peripherals in laboratory, classroom cluster, and other appropriate instructional arrangements.</li> </ol>	
Install local mass storage devices and media to store and retrieve information and resources.	
3. Prioritize issues related to selecting, installing, and maintaining wide area networks (WAN) for school	
districts, and facilitate integration of technology infrastructure with the WAN.	
4. Manage software used in classroom and administrative settings including productivity tools, information	
access/telecommunication tools, multimedia/hypermedia tools, school management tools,	
evaluation/portfolio tools, and computer-based instruction.  5. Evaluate methods of installation, maintenance, inventory, and management of software libraries.	
6. Develop and disseminate strategies for troubleshooting and maintaining various hardware/software	
configurations found in school settings.	
7. Select network software packages for operating a computer network system and/or local area network.	
8. Analyze needs for technology support personnel to manage school/district technology resources and	
maximize use by administrators, teachers, and students to improve student learning.	
TL-VII.B. Follow procedures and guidelines used in planning and purchasing technology resources. Cand	lidates:

TL-VII. Performance Indicators & Tasks	Links to Evidence that Standard has been met: Artifacts, Performance Data
<ol> <li>Investigate purchasing strategies and procedures for acquiring administrative and instructional software for educational settings.</li> </ol>	
<ol><li>Develop and utilize guidelines for budget planning and management procedures related to educational computing and technology facilities and resources.</li></ol>	
<ol><li>Develop and disseminate a system for analyzing and implementing procedures related to troubleshooting and preventive maintenance on technology infrastructure.</li></ol>	
<ol> <li>Maintain and disseminate current information involving facilities planning issues and computer related technologies.</li> </ol>	
<ol> <li>Design and develop policies and procedures concerning staging, scheduling, and security for managing hardware, software, and related technologies in a variety of instructional and administrative school settings.</li> </ol>	
<ol><li>Research and recommend systems and processes for implementation of distance learning facilities and infrastructure.</li></ol>	
Differentiate among specifications for purchasing technology systems in school settings.	
TL-VII.C. Participate in professional development opportunities related to management of school facilitie	s, technology resources and purchases. Candidates:
Implement technology professional development at the school/district level utilizing adult learning theory.	
Leadership and Vision. Educational technology leaders will facilitate development of a shared vision environment and culture to conducive to the realization of the vision. Educational technology leader  TL-VIII Performance Indicators & Tasks	
TE-VIII I CHOIMAICE Mulcators & rasks	Artifacts, Performance Data
TL-VIII.A. Identify and apply educational and technology related research, the psychology of learning, an and technology in education. Candidates:	d instructional design principles in quiding the use of computers
	a manuchonal design principles in guiding the use of computers
<ol> <li>Communicate and apply principles and practices of educational research in educational technology.</li> </ol>	a manactional design principles in galating the use of computers
TL-VIII.B. Apply strategies for and knowledge of issues related to managing the change process in scho-	
TL-VIII.B. Apply strategies for and knowledge of issues related to managing the change process in school. Describe social/historical foundations of education and how they relate to use of technology in schools.	
TL-VIII.B. Apply strategies for and knowledge of issues related to managing the change process in scho- 1. Describe social/historical foundations of education and how they relate to use of technology in schools.  TL-VIII.C. Apply effective group process skills. Candidates:	
TL-VIII.B. Apply strategies for and knowledge of issues related to managing the change process in scho  1. Describe social/historical foundations of education and how they relate to use of technology in schools.  TL-VIII.C. Apply effective group process skills. Candidates:  1. Discuss issues relating to building collaborations, alliances, and partnerships involving educational technology initiatives.	ols. Candidates:
TL-VIII.B. Apply strategies for and knowledge of issues related to managing the change process in scho  1. Describe social/historical foundations of education and how they relate to use of technology in schools.  TL-VIII.C. Apply effective group process skills. Candidates:  1. Discuss issues relating to building collaborations, alliances, and partnerships involving educational technology initiatives.  TL-VIII.D. Lead in the development and evaluation of district technology planning and implementation. C	ols. Candidates:
TL-VIII.B. Apply strategies for and knowledge of issues related to managing the change process in scho  1. Describe social/historical foundations of education and how they relate to use of technology in schools.  TL-VIII.C. Apply effective group process skills. Candidates:  1. Discuss issues relating to building collaborations, alliances, and partnerships involving educational technology initiatives.  TL-VIII.D. Lead in the development and evaluation of district technology planning and implementation. C  1. Design and lead in the implementation of effective group process related to technology leadership or planning.	ols. Candidates:
TL-VIII.B. Apply strategies for and knowledge of issues related to managing the change process in scho  1. Describe social/historical foundations of education and how they relate to use of technology in schools.  TL-VIII.C. Apply effective group process skills. Candidates:  1. Discuss issues relating to building collaborations, alliances, and partnerships involving educational technology initiatives.  TL-VIII.D. Lead in the development and evaluation of district technology planning and implementation. C  1. Design and lead in the implementation of effective group process related to technology leadership or planning.  2. Use evaluation findings to recommend modifications in technology implementations.	ols. Candidates:
TL-VIII.B. Apply strategies for and knowledge of issues related to managing the change process in scho  1. Describe social/historical foundations of education and how they relate to use of technology in schools.  TL-VIII.C. Apply effective group process skills. Candidates:  1. Discuss issues relating to building collaborations, alliances, and partnerships involving educational technology initiatives.  TL-VIII.D. Lead in the development and evaluation of district technology planning and implementation. C  1. Design and lead in the implementation of effective group process related to technology leadership or planning.	ols. Candidates:
<ul> <li>TL-VIII.B. Apply strategies for and knowledge of issues related to managing the change process in school. Describe social/historical foundations of education and how they relate to use of technology in schools.</li> <li>TL-VIII.C. Apply effective group process skills. Candidates:         <ol> <li>Discuss issues relating to building collaborations, alliances, and partnerships involving educational technology initiatives.</li> </ol> </li> <li>TL-VIII.D. Lead in the development and evaluation of district technology planning and implementation. Cooking and lead in the implementation of effective group process related to technology leadership or planning.</li> <li>Use evaluation findings to recommend modifications in technology implementations.</li> <li>Use national, state, and local standards to develop curriculum plans for integrating technology in the school environment.</li> </ul> <li>Develop curriculum activities or performances that meet national, state, and local technology standards.</li>	ols. Candidates:
<ul> <li>TL-VIII.B. Apply strategies for and knowledge of issues related to managing the change process in school. Describe social/historical foundations of education and how they relate to use of technology in schools.</li> <li>TL-VIII.C. Apply effective group process skills. Candidates:         <ol> <li>Discuss issues relating to building collaborations, alliances, and partnerships involving educational technology initiatives.</li> </ol> </li> <li>TL-VIII.D. Lead in the development and evaluation of district technology planning and implementation. Cooking and lead in the implementation of effective group process related to technology leadership or planning.</li> <li>Use evaluation findings to recommend modifications in technology implementations.</li> <li>Use national, state, and local standards to develop curriculum plans for integrating technology in the school environment.</li> <li>Develop curriculum activities or performances that meet national, state, and local technology standards.</li> <li>Compare and evaluate district-level technology plans.</li> </ul>	ols. Candidates:
<ul> <li>TL-VIII.B. Apply strategies for and knowledge of issues related to managing the change process in school. Describe social/historical foundations of education and how they relate to use of technology in schools.</li> <li>TL-VIII.C. Apply effective group process skills. Candidates:         <ol> <li>Discuss issues relating to building collaborations, alliances, and partnerships involving educational technology initiatives.</li> </ol> </li> <li>TL-VIII.D. Lead in the development and evaluation of district technology planning and implementation. Cooking and lead in the implementation of effective group process related to technology leadership or planning.</li> <li>Use evaluation findings to recommend modifications in technology implementations.</li> <li>Use national, state, and local standards to develop curriculum plans for integrating technology in the school environment.</li> </ul> <li>Develop curriculum activities or performances that meet national, state, and local technology standards.</li>	ols. Candidates:

TF-VII Performance Indicators & Tasks	Links to Evidence that Standard has been met: Artifacts, Performance Data
TL-VIII.E. Engage in supervised field-based experiences with accomplished technology facilitators and/o	or directors. Candidates:
Participate in a significant field-based activity involving experiences in instructional program	
development, professional development, facility and resource management, WAN/LAN/wireless systems,	
or managing change related to technology use in school-based settings.	

#### **SUPPORTING EXPLANATION - Technology Leadership (TL) Standards**

Standards for the Technology Leadership program are designed to communicate expectations for the performance of candidates who will serve as Educational Computing and Technology Directors, Coordinators, or Specialists at the district, regional, and/or state levels. This responsibility takes many forms within the varying environments across educational systems.

The TL program standards are aligned with the six National Educational Technology Standards for Teachers, but extend the performance expectations of each standard to reflect preparation for serving as a director, coordinator, or technology integration specialist at the district, regional, and/or state levels, assisting teachers as well as Technology Facilitators in their efforts to support student learning and educator professional growth with technology.

# INTERNATIONAL SOCIETY FOR TECHNOLOGY IN EDUCATION (ISTE) Technology Leadership Advanced Program Performance Rubric

#### TECHNOLOGY LEADERSHIP (TL) ADVANCED PROGRAM RUBRIC

<b>Standard TL-I. Technology Operations and Concepts.</b> Educational technology leaders demonstrate an advanced understanding of technology operations and concepts. Educational technology leaders:					
Performance Indicator	Approaches Standard	Meets Standard	Exceeds Standard		
A. Demonstrate knowledge, skills, and understanding of concepts related to technology (as described in the ISTE National Education Technology Standards for Teachers). Candidates:					
TL-I.A.1	conduct needs assessment to determine baseline data on teachers' knowledge, skills, and understanding of concepts related to technology.	identify and evaluate components needed for the continual growth of knowledge, skills, and understanding of concepts related to technology.	develop and implement a professional development model that assures continual growth in knowledge, skills, and understanding of concepts related to technology.		
TL-I.A.2	evaluate the effectiveness of modeling used to develop teachers' knowledge, skills, and understanding of concepts related to technology.	offer a variety of professional development opportunities that facilitate the ongoing development of knowledge, skills, and understanding of concepts related to technology.	assess a variety of professional development opportunities that facilitate the ongoing development of knowledge, skills, and understanding of concepts related to technology.		
B. Demonstrate continual growth in technology knowledge and skills to stay abreast of current and emerging technologies. Candidates:					
TL-I.B.1	evaluate the effectiveness of the modeling of appropriate strategies essential to continued growth and development of the understanding of technology operations and concepts.	offer a variety of professional development opportunities that facilitate the continued growth and development of the understanding of technology operations and concepts.	develop and assess a variety of professional development opportunities that facilitate the continued growth and development of the understanding of technology operations and concepts.		

Standard TL-II. Planning and Designing Learning Environments and Experiences. Educational technology leaders assist by planning, designing, and modeling						
effective learning environments and experiences supported by technology at the district/ state/ regional level. Educational technology leaders:						
Performance	Approaches	Meets	Exceeds			
Indicator	Standard	Standard	Standard			
A. Design developmentally appropriate learning opportunities that apply technology-enhanced instructional strategies to support the diverse needs of learners. Candidates:						
TL-II.A.1	model the creation of developmentally appropriate curriculum units that use technology.	research and disseminate project-based instructional units modeling appropriate uses of technology to support learning.	build an online database of project-based instructional units modeling appropriate uses of technology to support learning.			
TL-II.A.2	model methods and strategies for teaching computer/technology concepts and skills within the context of classroom learning.	identify and evaluate methods and strategies for teaching computer/technology concepts and skills within the context of classroom learning and coordinate dissemination of best practices at the district/state/regional level.	identify and evaluate methods and strategies for teaching computer/technology concepts and skills within the context of classroom learning and coordinate dissemination of best practices at the national and international level.			

Performance	Approaches	Meets	Exceeds		
Indicator	Standard	Standard	Standard		
TL-II.A.3	model strategies to support the diverse needs	stay abreast of current technology resources and	develop technology resources and strategies to		
	of learners including adaptive and assistive	strategies to support the diverse needs of learners	support the diverse needs of learners including		
	technologies and disseminate information to	including adaptive and assistive technologies and	adaptive and assistive technologies and disseminate		
	teachers.	disseminate information to teachers.	information to teachers.		
		nology when planning learning environments and experiences			
TL-II.B.1	model strategies reflecting current research on	locate and evaluate current research on teaching and	conduct research on teaching and learning with		
	teaching and learning with technology when	learning with technology when planning learning	technology when planning learning environments		
	planning learning environments and	environments and experiences.	and experiences.		
	experiences.				
C. Identify and locate technology resources and evaluate them for accuracy and suitability. Candidates:					
TL-II.C.1	model the use of technology resources	identify technology resources and evaluate them for	develop technology resources based on the content		
	reflecting district and state standards.	accuracy and suitability based on the content standards.	standards.		
TL-II.C.2	create professional development activities that	provide ongoing appropriate professional development to	develop, implement, and assess a professional		
	reflect content standards and integrate	disseminate the use of technology resources that reflect	development model aligning technology resources		
	technology resources.	content standards.	and content standards.		
	management of technology resources within the				
TL-II.D.1	model the use of technology resources within	identify and evaluate options for the management of	research findings on the management of technology		
	the context of learning activities.	technology resources within the context of learning	resources within the context of learning activities		
		activities.	and create a professional development model.		
	ies to manage student learning in a technology	-enhanced environment. Candidates:			
TL-II.E.1	model a variety of strategies to manage student	continually evaluate a variety of strategies to manage	conduct research on a variety of strategies to		
	learning in a technology-enhanced environment	student learning in a technology-enhanced environment	manage student learning in a technology-enhanced		
	and support the teachers as they implement	and disseminate through professional development	environment and disseminate results.		
	the strategies.	activities.			
		d with the development of technology resources. Candidates:			
TL-II.F.1	model the use of appropriate instructional	identify and evaluate instructional design principles	develop, implement and evaluate a professional		
	design principles associated with the	associated with the development of technology resources.	development model for assisting teachers in the		
	development of technology resources.		identification and application of instructional design		
			principles associated with the development of		
			technology resources.		
_					
		<ul> <li>Educational technology leaders model, design, and diss</li> </ul>	eminate curriculum plans that include methods		
and strategies	s for applying technology to maximize student	learning. Educational technology leaders:			
Performance	Approaches	Meets	Exceeds		
Indicator	Standard	Standard	Standard		
A Facilitate te	chnology-enhanced experiences that address of	ontent standards and student technology standards. Candida	tes:		

Performance Indicator	Approaches Standard	Meets Standard	Exceeds Standard
TL-III.A.1	analyze methods and facilitate strategies for teaching concepts and skills that support integration of technology productivity tools (refer to nets for students).	design methods and strategies for teaching concepts and skills that support integration of technology productivity tools (refer to nets for students).	model strategies for teaching concepts and skills that support integration of technology productivity tools (refer to nets for students).
TL-III.A.2	summarize major research findings and trends related to the use of technology in education to support integration throughout the curriculum.	design methods for teaching concepts and skills that support integration of communication tools (refer to nets for students).	model strategies for teaching concepts and skills that support integration of communication tools (refer to nets for students).
TL-III.A.3	analyze methods and support teachers as they use strategies for teaching concepts and skills that support integration of research tools (refer to nets for students).	design methods and strategies for teaching concepts and skills that support integration of research tools (nets refer to for students).	model strategies for teaching concepts and skills that support integration of research tools (nets refer to for students).
TL-III.A.4	analyze methods and facilitate strategies for teaching concepts and skills that support integration of problem solving/ decision-making tools (refer to nets for students).	design methods and model strategies for teaching concepts and skills that support integration of problem solving/ decision-making tools (refer to nets for students).	implement methods and strategies for teaching concepts and skills that support integration of - problem solving/ decision-making tools (refer to nets for students).
TL-III.A.5	analyze methods and facilitate strategies for teaching concepts and skills that support use of media-based tools such as television, audio, print media, and graphics.	design methods and model strategies for teaching concepts and skills that support use of media-based tools such as television, audio, print media, and graphics.	implement methods and model strategies for teaching concepts and skills that support use of media-based tools such as television, audio, print media, and graphics.
TL-III.A.6	analyze methods and strategies for teaching concepts and skills that support use of distance learning systems appropriate in a school environment.	evaluate methods and strategies for teaching concepts and skills that support use of distance learning systems appropriate in a school environment.	implement methods and strategies for teaching concepts and skills that support use of distance learning systems appropriate in a school environment.
TL-III.A.7	analyze methods for teaching concepts and skills that support use of web-based and non web-based authoring tools in a school environment.	design methods and model strategies for teaching concepts and skills that support use of web-based and non web-based authoring tools in a school environment.	implement methods and strategies for teaching concepts and skills that support use of web-based and non web-based authoring tools in a school environment.
B. Use technol	ogy to support learner-centered strategies that	address the diverse needs of students. Candidates:	
TL-III.B.1	analyze methods and strategies for integrating technology resources that support the needs of diverse learners including adaptive and assistive technology.	design methods and strategies for integrating technology resources that support the needs of diverse learners including adaptive and assistive technology.	implement methods and strategies for integrating technology resources that support the needs of diverse learners including adaptive and assistive technology.
C. Apply techn	ology to develop students' higher order skills a	and creativity. Candidates:	-
TL-III.C.1	analyze methods and facilitate strategies for teaching problem solving principles and skills using technology resources.	design methods and model strategies for teaching hypermedia development, scripting, and/or computer programming, in a problem-solving context in the school environment.	implement strategies for teaching hypermedia development, scripting, and/or computer programming, in a problem-solving context in the school environment.
D. Manage stud	dent-learning activities in a technology-enhanc	ed environment. Candidates:	

Performance Indicator	Approaches Standard	Meets Standard	Exceeds Standard
TL-III.D.1	analyze methods and classroom management strategies for teaching technology concepts and skills in individual, small group, classroom, and/or lab settings.	design methods and model classroom management strategies for teaching technology concepts and skills used in p-12 environments.	implement methods and classroom management strategies for teaching technology concepts and skills used in p-12 environments.
E. Use current	research and district/region/state/national con	tent and technology standards to build lessons and units of in	struction. Candidates:
TLII.E.1	disseminate information regarding curricular methods and strategies that are aligned with district/region/state/ national content and technology standards.	disseminate curricular methods and strategies that are aligned with district/region/state /national content and technology standards.	model curricular methods and strategies that are aligned with district/region/state /national content and technology standards.
TL-III.E.2	summarize and disseminate major research findings and trends related to the use of technology in education to support integration throughout the curriculum.	investigate major research findings and trends related to the use of technology in education to support integration throughout the curriculum.	disseminate major research findings and trends related to the use of technology in education to support integration throughout the curriculum.

<b>Standard TL-IV. Assessment and Evaluation.</b> Educational technology leaders communicate research on the use of technology to implement effective assessment					
and evaluatio	and evaluation strategies. Educational technology leaders:				
Performance	Approaches	Meets	Exceeds		
Indicator	Standard	Standard	Standard		
A. Apply tech	nology in assessing student learning of subject m	natter using a variety of assessment techniques. Candidates	- S:		
TL-IV.A.1	analyze methods and facilitate the use of strategies to assess student learning of subject matter using a variety of assessment techniques.	facilitate the development of a variety of techniques to use technology to assess student learning of subject matter.	develop, implement and assess innovative techniques, which include the use of technology for assessing student learning.		
TL-IV.A.2	analyze methods and facilitate the use of strategies to improve learning and instruction through the evaluation and assessment of artifacts and data.	provide technology resources for assessment and evaluation of artifacts and data.	develop, implement and assess innovative technology resources for assessment and evaluation of artifacts and data.		
B. Use technol Candidates:	logy resources to collect and analyze data, interp	ret results, and communicate findings to improve instructio	nal practice and maximize student learning.		
TL-IV.B.1	examine the validity and reliability of technology resources to collect and analyze data, interpret results, and communicate findings to improve instructional practice and maximize student learning.	identify and procure technology resources to aid in analysis and interpretation of data.	develop, implement and assess innovative technology resources to aid in analysis and interpretation of data.		
C. Apply multi	C. Apply multiple methods of evaluation to determine students' appropriate use of technology resources for learning, communication, and productivity. Candidates:				
TL-IV.C.1	recommend evaluation strategies for improving students' use of technology resources for learning, communication, and productivity.	design strategies and methods for evaluating the effectiveness of technology resources for learning, communication, and productivity.	research and disseminate findings on the effectiveness of technology resources for evaluating learning, communication, and productivity.		

Performance	Approaches	Meets	Exceeds
Indicator	Standard	Standard	Standard
TL-IV.C.2	analyze data from a research project that includes evaluating the use of a specific technology in a p-12 environment.	conduct a research project that includes evaluating the use of a specific technology in a p-12 environment.	design a research project that includes evaluating the use of several technology resources in a p-12 environment.

Standard TL-V. Productivity and Professional Practice. Educational technology leaders design, develop, evaluate and model products created using technology				
	resources to improve and enhance their productivity and professional practice. Educational technology leaders:			
Performance Indicator	Approaches Standard	Meets Standard	Exceeds Standard	
A. Use techno	logy resources to engage in ongoing profession	al development and lifelong learning. Candidates:		
TL-V.A.1	use resources and professional development activities available from professional technology organizations to support ongoing professional growth related to technology.	design, prepare, and conduct professional development activities to present at the school/district level and at professional technology conferences to support ongoing professional growth related to technology.	evaluate professional development activities presented at professional technology conferences to support ongoing professional growth related to technology.	
TL-V.A.2	implement policies that support district-wide professional growth opportunities for staff, faculty, and administrators.	plan and implement policies that support district-wide professional growth opportunities for staff, faculty, and administrators.	plan, implement, and revise policies that support district-wide professional growth opportunities for staff, faculty, and administrators.	
B. Continually	evaluate and reflect on professional practice to	make informed decisions regarding the use of technology in	support of student learning. Candidates:	
TL-V.B.1	continually evaluate professional practice to make informed decisions regarding the use of technology in support of student learning and disseminate findings to district administrators.	based on evaluations make recommendations for changes in professional practices regarding the use of technology in support of student learning.	implement changes based on recommendations for changes in professional practices regarding use of technology in support of student learning.	
C. Apply techr	ology to increase productivity. Candidates:		-	
TL-V.C.1	model the integration of advanced features of word processing, desktop publishing, graphics programs, and utilities to develop professional products.	model the integration of data from multiple software applications using advanced features of applications such as word processing, database, spreadsheet, communication, and other tools into a product.	create multimedia presentations integrated with multiple types of data using advanced features of a presentation tool and model them to audiences inside and outside the district using computer projection systems.	
TL-V.C.2	facilitate activities to help others in locating, selecting, capturing, and integrating video and digital images, in varying formats for use in presentations, publications or other products.	create multimedia presentations integrated with multiple types of data using advanced features of a presentation tool and model them to district staff using computer projection systems.	create multimedia presentations integrated with multiple types of data using advanced features of a presentation tool and model them to audiences inside and outside the district using computer projection systems.	
TL-V.C.3	facilitate the use of specific-purpose electronic devices (such as graphing calculators, languages translators, scientific probeware, or electronic thesaurus) in content areas.	document and assess field-based experiences and observations using specific-purpose electronic devices.	document and assess your field-based experiences and observations using specific-purpose electronic devices and then collaborate with peers regarding results.	
TL-V.C.4	use a variety of distance learning systems to support personal/professional development.	use distance learning delivery systems to conduct and provide professional development opportunities for students, teachers, administrators, and staff.	use distance learning delivery systems to conduct and provide professional development opportunities for students, teachers, administrators, and staff and other schools in surrounding communities.	

Performance Indicator	Approaches Standard	Meets Standard	Exceeds Standard
TL-V.C.5	apply instructional design principles to develop hypermedia/multimedia products to support professional development.	apply instructional design principles to develop and analyze substantive interactive multimedia computerbased instructional products.	apply instructional design principles to develop, analyze, and then compare substantive interactive multimedia computer-based instructional products.
TL-V.C.6	model the use of appropriate tools for communicating concepts, conducting research, and solving problems for an intended audience and purpose.	design and practice strategies for testing functions and evaluating technology use effectiveness of instructional products that were developed using multiple technology tools.	design and practice strategies for analyzing content accuracy, testing functions, and evaluating technology use effectiveness of instructional products that were developed using multiple technology tools.
TL.V.C.7	use examples of emerging programming, authoring or problem solving environments that support personal/professional development.	analyze examples of emerging programming, authoring or problem solving environments that support personal and professional development, and make recommendations for integration at school/district level.	analyze and model examples of emerging programming, authoring or problem solving environments that support personal/professional development, and make recommendations for integration at school/district level.
TL-V.C.8	set and manipulate preferences and defaults of operating systems and productivity tool programs, and troubleshoot problems associated with their operation.	analyze and modify the features and preferences of major operating systems and/or productivity tool programs when developing products to solve problems encountered with their operation and/or to enhance their capability.	analyze, evaluate, and modify the features and preferences of major operating systems and/or productivity tool programs when developing products to solve problems encountered with their operation and/or to enhance their capability.
		s, parents, and the larger community in order to nurture stude	
TL-V.D.1	stay abreast of current telecommunications tools and resources for information sharing, remote information access, and multimedia/hypermedia publishing in order to nurture student learning.	model and implement the use of telecommunications tools and resources to foster and support information sharing, remote information access, and communication between students, school staff, parents, and local community.	model and analyze the use of telecommunications tools and resources to foster and support information sharing, remote information access, and communication between students, school staff, parents, and local/state/national/ international community.
TL-V.D.2	communicate with colleagues and apply current research to support instruction, using applications including electronic mail, online conferencing and web browsers.	organize, coordinate, and participate in an online learning community related to the use of technology to support learning.	organize, coordinate, and monitor an online learning community designed for students, staff and members of the community related to a predefined curricular subject.
TL-V.D.3	investigate and disseminate online collaborative curricular projects and team activities to build bodies of knowledge around specific topics.	organize and coordinate online collaborative curricular projects with corresponding team activities/ responsibilities to build bodies of knowledge around specific topics.	organize, coordinate, and monitor online collaborative curricular projects with corresponding team activities/responsibilities to build bodies of knowledge around specific topics.
TL-V.D.4	design, maintain, and facilitate the development of web pages and sites that support communication between teachers, school, and community.	design, modify, maintain, and facilitate the development of web pages and sites that support communication and information access between the entire school district and local/state/national/ international communities.	develop, organize, and conduct professional development to enable site/department web personnel to develop and modify school based web sites.

Standard TL-VI. Social, Ethical, Legal, and Human Issues. Educational technology leaders understand the social, ethical, legal, and human issues surrounding the use of technology in PK-12 schools and develop programs facilitating application of that understanding in practice throughout their district/ region/state. Educational technology leaders:

Performance	Approaches	Meets	Exceeds	
Indicator	Standard	Standard	Standard	
A. Model and teach legal and ethical practice related to technology use. Candidates:				

Performance Indicator	Approaches Standard	Meets Standard	Exceeds Standard		
TL-VI.A.1	analyze rules, policies, and procedures to support the legal and ethical use of technology.	establish and communicate clear rules, policies, and procedures to support legal and ethical use of technologies at the district/ region/state levels.	advocate for rules, policies, and procedures to support legal and ethical use of technologies at the national and international level.		
TF-VI.A.2	plan activities that focus on copyright laws related to use of images, music, video, and other digital resources in varying formats.	implement a plan for documenting adherence to copyright laws.	implement an evaluation system to determine adherence to copyright laws.		
B. Apply techr	nology resources to enable and empower learne	ers with diverse backgrounds, characteristics, and abilities. Ca	andidates:		
TL-VI.B.1	analyze and recommend appropriate technology resources to enable and empower learners with diverse backgrounds, characteristics, and abilities.	communicate research on best practices related to applying appropriate technology resources to enable and empower learners with diverse backgrounds, characteristics, and abilities.	research best practices related to applying appropriate technology resources to enable and empower learners with diverse backgrounds, characteristics, and abilities.		
TL-VI.B.2	analyze and recommend appropriate adaptive/assistive hardware and software for students and teachers with special needs and assist in procurement and implementation.	develop policies and provide professional development related to acquisition and use of appropriate adaptive/assistive hardware and software for students and teachers with special needs.	research adaptive /assistive hardware and software for students and teachers with special needs and advocate appropriate use at the national and international level.		
C. Identify and	I use technology resources that affirm diversity	. Candidates:			
TL-VI.C.1	recommend appropriate technology resources to affirm diversity and address cultural and language differences.	communicate research on best practices related to applying appropriate technology resources to affirm diversity and address cultural and language differences.	conduct research to determine best practices for applying appropriate technology resources to affirm diversity and address cultural and language differences.		
D. Promote saf	e and healthy use of technology resources. Candid	ates:			
TL-VI.D.1	recommend appropriate technology resources to promote safe and healthy use of technology.	communicate research and establish policies to promote safe and healthy use of technology.	conduct research and advocate safe and healthy use of technology.		
E. Facilitate ed	E. Facilitate equitable access to technology resources for all students. Candidates:				
TL-VI.E.1	conduct research to determine effective strategies for achieving equitable access to technology resources for all students and teachers.	use research findings in establishing policy and implementation strategies to promote equitable access to technology resources for students and teachers.	advocate for national and international policies that provide equitable access to technology resources for all students and teachers.		

	<b>Standard TL-VII. Procedures, Policies, Planning, and Budgeting for Technology Environments.</b> Educational technology leaders coordinate development and direct implementation of technology infrastructure procedures, policies, plans, and budgets for P-12 schools. Educational technology leaders:					
Performance Indicator	Performance Approaches Meets Exceeds					
A. Use the sch	nool technology facilities and resources to impl	ement classroom instruction. Candidates:				
TL-VII.A.1	stay abreast of current developments to configure computer/technology systems and related peripherals in laboratory, classroom cluster, and other appropriate instructional arrangements.	develop plans to configure software/computer/ technology systems and related peripherals in laboratory, classroom cluster, and other appropriate instructional arrangements.	disseminate plans to configure computer/technology systems and related peripherals in laboratory, classroom cluster, and other appropriate instructional arrangements.			

Performance	Approaches	Meets	Exceeds
Indicator	Standard	Standard	Standard
TL-VII.A.2	stay abreast of local mass storage devices and media to store and retrieve information and resources.	install local mass storage devices and media to store and retrieve information and resources.	configure local mass storage devices and media to store and retrieve information and resources.
TL-VII.A.3	differentiate among issues related to selecting, installing, and maintaining wide area networks (wan) for school districts, and facilitate integration of technology infrastructure with the wan.	prioritize issues related to selecting, installing, and maintaining wide area networks (wan) for school districts, and facilitate integration of technology infrastructure with the wan.	make modifications based upon prioritized issues related to selecting, installing, and maintaining wide area networks (wan) for school districts, and facilitate integration of technology infrastructure with the wan.
TL-VII.A.4	analyze software used in classroom and administrative settings including productivity tools, information access/telecommunication tools, multimedia/hypermedia tools, school management tools, evaluation/portfolio tools, and computer-based instruction.	manage software used in classroom and administrative settings including productivity tools, information access/telecommunication tools, multimedia/hypermedia tools, school management tools, evaluation/portfolio tools, and computer-based instruction.	evaluate and recommend software used in classroom and administrative settings including productivity tools, information access/telecommunication tools, multimedia/hypermedia tools, school management tools, evaluation/portfolio tools, and computer-based instruction.
TL-VII.A.5	analyze and critique methods of installation, maintenance, inventory, and management of software libraries.	evaluate methods of installation, maintenance, inventory, and management of software libraries.	implement methods of installation, maintenance, inventory, and management of software libraries.
TL-VII.A.6	stay abreast of current strategies for troubleshooting and maintaining various hardware/software configurations found in school settings.	develop and disseminate strategies for troubleshooting and maintaining various hardware/software configurations found in school settings.	implementing strategies for troubleshooting and maintaining various hardware/software configurations found in school settings.
TL-VII.A.7	evaluate network software packages used to operate a computer network system and/or local area network (lan).	select network software packages used to operate a computer network system and/or local area network (lan).	install and maintain network software packages used to operate a computer network system and/or local area network (lan).
TL-VII.A.8	identify areas where support personnel are needed to manage and enhance use of technology resources in the school by administrators, teachers and students.	analyze needs for technology support personnel to manage school/district technology resources and maximize use by administrators, teachers, and students to improve student learning.	formulate a plan to acquire technology support personnel to manage school/district technology resources and maximize by administrators, teachers, and students to improve student learning.
	edures and guidelines used in planning and pu		
TL-VII.B.1	evaluate instructional software to support and enhance the school curriculum and develop recommendations for purchase.	investigate purchasing strategies and procedures for acquiring administrative and instructional software for educational settings.	recommend purchasing strategies and procedures for acquiring administrative and instructional software for educational settings.
TL-VII.B.2	analyze guidelines for budget planning and management procedures related to educational computing and technology facilities and resources.	develop and utilize guidelines for budget planning and management procedures related to educational computing and technology facilities and resources.	implement guidelines for budget planning and management procedures related to educational computing and technology facilities and resources.
TL-VII.B.3	stay abreast of current procedures related to troubleshooting and preventive maintenance on technology infrastructure.	develop and disseminate a system for analyzing and implementing procedures related to troubleshooting and preventive maintenance on technology infrastructure.	operate a system for analyzing and implementing procedures related to troubleshooting, and preventive maintenance on technology infrastructure.

Performance Indicator	Approaches Standard	Meets Standard	Exceeds Standard
TL-VII.B.4	analyze and apply current information involving facilities planning issues and computer related technologies.	maintain and disseminate current information involving facilities planning issues and computer related technologies.	evaluate current information involving facilities planning issues and computer related technologies.
TL-VII.B.5	apply policies and procedures concerning staging, scheduling, and security for managing computers/technology in a variety of school/laboratory/classroom settings.	design and develop policies and procedures concerning staging, scheduling, and security for managing hardware, software, and related technologies in a variety of instructional and administrative school settings.	evaluate policies and procedures concerning staging, scheduling, and security for managing hardware, software, and related technologies in a variety of instructional and administrative school settings.
TL-VII.B.6	Select distance and online learning facilities and resources.	research and recommend systems and processes for implementation of distance and online learning facilities and infrastructure.	operate systems and processes for implementation of distance and online learning facilities and infrastructure.
TL-VII.B.7	research specifications for purchasing technology systems.	differentiate among specifications for purchasing technology systems in school settings.	make recommendations regarding specifications for purchasing technology systems.
C. Participate in professional development opportunities related to management of school facilities, technology resources, and purchases. Candidates:			
TL-VII.C.1	design and plan technology professional development at the building/school level utilizing adult learning theory.	implement technology professional development at the school/district level utilizing adult learning theory.	evaluate technology professional development at the school/district level utilizing adult learning theory.

		chnology leaders will facilitate development of a shared vis	ion for comprehensive integration of technology		
	and foster an environment and culture conducive to the realization of the vision. Educational technology leaders:				
Performance Indicator	Approaches Standard	Meets Standard	Exceeds Standard		
	apply educational and technology related rese education. Candidates:	arch, the psychology of learning, and instructional design pri	nciples in guiding the use of computers and		
TL-VIII.A.1	locate and disseminate current research in educational technology.	communicate and apply principles and practices of educational research in educational technology.	conduct research in educational technology.		
B. Apply strate	egies for and knowledge of issues related to ma	naging the change process in schools. Candidates:			
TL-VIII.B.1	develop implement activities that focus on the history of technology use in schools.	describe social and historical foundations of education and how they relate to the use of technology in schools.	research the social historical foundations of education and how they relate to the use of technology in schools.		
C. Apply effect	tive group process skills. Candidates:		-		
TL-VIII.C.1	provide information on the benefits of forming school partnerships to support technology integration and locate an existing partnership within a school setting.	discuss issues relating to building collaborations, alliances, and partnerships involving educational technology initiatives.	build collaborations, alliances, and partnerships involving educational technology initiatives.		
D. Lead in the	development and evaluation of district technological	ogy planning and implementation. Candidates:			
TL-VIII.D.1	disseminate information on effective cooperative group processes.	design and lead in the implementation of an effective group process related to technology leadership or planning.	use effective group process related to technology leadership or planning.		

Performance Indicator	Approaches Standard	Meets Standard	Exceeds Standard
TL-VIII.D.2	create an evaluation instrument to use to conduct an evaluation of a school technology environment.	use evaluation findings to recommend modifications in technology implementations.	conduct evaluations to determine needed modifications in technology implementations.
TL-VIII.D.3	examine the impact of national, state, and local standards for integrating technology in the school environment.	use national, state, and local standards to develop curriculum plans for integrating technology in the school environment.	assist in the development of national, state, and local standards for the development of curriculum plans for integrating technology in the school environment.
TL-VIII.D.4	examine the impact of curriculum activities or performances that meet national, state, and local technology standards.	develop curriculum activities or performances that meet national, state, and local technology standards.	assist in the development of national, state, and local standards for the development of curriculum activities or performances.
TL-VIII.D.5	determine essential components of a school technology plan.	compare and evaluate district-level technology plans.	facilitate the development of technology plans.
TL-VIII.D.6	determine essential elements and strategies for developing a technology strategic plan.	use strategic planning principles to lead and assist in the acquisition, implementation, and maintenance of technology resources.	develop strategic planning principles to lead and assist in the acquisition, implementation, and maintenance of technology resources.
TL-VIII.D.7	determine strategies and procedures needed for resource acquisition and management of technology-based systems including hardware and software.	plan, develop, and implement strategies and procedures for resource acquisition and management of technology-based systems including hardware and software.	research to determine effectiveness of strategies and procedures for resource acquisition and management of technology-based systems including hardware and software.
E. Engage in s	upervised field-based experiences with accom	plished technology facilitators and/or directors. Candidates:	
TL-VIII.E.1	determine components needed for effective field-based experiences in instructional program development, professional development, facility and resource management, wan/lan/wireless systems, or managing change related to technology use in school based settings.	participate in a significant field-based activity involving experiences in instructional program development, professional development, facility and resource management, wan/lan/wireless systems, or managing change related to technology use in school-based settings.	mentor participants involved in a significant field- based activity involving experiences in instructional program development, professional development, facility and resource management, wan/lan/wireless systems, or managing change related to technology use in school based settings.

### SUPPORTING EXPLANATION Technology Leadership (TL) Rubrics

Units preparing candidates for this program may collect artifacts demonstrating candidates' performances in addressing the program standards, assess performance by evaluating artifacts using the above ISTE/NCATE Technology Leadership (TL) rubrics and aggregate the performance data collected to provide program-level data. The standards and rubrics should help faculty to identify the kinds of experiences they provide in their courses and whether or not those experiences generate candidate performance that approaches, meets, or exceeds the standards. Each major assignment or experience should be planned to address the performance indicators at levels appropriate to prepare candidates for the essential benchmark assessments. Candidates should be aware of the level of expectations for their performance on each assignment and that their performances will be measured against the "meets standard" performance level of the rubric.

Rubrics, observation tools, self assessments, test scores, with quantifiable performance assessment ratings are often used to collect performance data that can be used to measure individual performance and be aggregated for program-level performance. When artifacts are collected in a portfolio, the portfolio may be available for online review, to substantiate the quality of work of your candidates. But, the performance artifacts used as evidence in the matrix should be selective. If you are indicating a Web site where student work is used to support the standard/indicator, provide performance data, the levels of your evaluation system, and an example of candidate work that was rated at each level.

### **Requirements for Candidate Proficiency Evidence**

### **Key Elements of Program Report**

This section is intended to assist institutions in developing the materials and evidence for program review. Particular attention should be paid to presenting clear evidence of candidates' accomplished teaching performance. The "Program Report" is the official document submitted to ISTE for peer review and evaluation. It describes the institution/program's best efforts to assemble evidence to show how it complies with the 8 teacher preparation program standards in each of the two Educational Computing and Technology programs: 1) Technology Facilitation -- initial endorsement program and 2) Technology Leadership -- advanced program. Reviewers will be provided the contextual information requested on the Check Sheet ( p. 7) and the Evidence (identified or linked in the standards matrix) provided by the program to determine compliance with the standards. The report must include information and aggregated data followed by summary narrative that provide evidence of candidate knowledge and performance. The document should be thorough, concise, easy to read, summative, and accurate.

#### **Evidence of Teacher Candidate Performance**

The performance-based assessment systems used by the program to provide evidence that candidates have the knowledge, skills, and dispositions to affect student learning must be evidenced throughout the programs. The Program Report should clearly address the program assessment system. This section should describe the on-going collection and aggregation of data; the summary system for the instructor, peer, and self-assessment; the summary system for data collected from observations; and rubrics for evaluation of knowledge products. The Program Report should address program plans to further develop assessment tools and methods to collect and aggregate data.

The local system for evaluating candidate performance in the Technology Facilitation and Technology Leadership programs will be required to follow the principles adapted from "Principles for Performance-based Assessment Systems in Professional Education Programs" from NCATE's Specialty Areas Studies Board, February 2000 taken from "Interim Policies and

Procedures for SASB Approval of Specialized Professional Association Standards" www.ncate.org, (NCATE, 2000):

- (1) The system is driven by a conceptual framework and program values that espouse assessment as a vehicle for both individual and program self-evaluation and improvement. Assessment is planned and implemented by key stakeholders in a manner consistent with the method of inquiry in the discipline and is considered a means to an end rather than an end in itself. This program's conceptual framework should align with the institution's overall conceptual framework, and should be described in the program's Contextual Statement (See Check Sheet).
- (2) The system includes components that work together in a synergistic manner to address the knowledge, skills, and dispositions of candidates across program goals, objectives and curriculum consistent with the performance-based standards of the respective national professional specialty. Assessment is a goal-oriented process linked to program purposes/goals and national standards.
- (3) Multiple measures are planned and administered on a systematic, ongoing basis throughout the program beginning with the admissions process. The system includes quantitative and qualitative measures useful for formative and summative assessment. Benchmarks for assessment of standards should be planned and administered at planned points in the development of the teacher candidate. Aggregated data from benchmark assessments should be used to assess improvement over time.
- (4) The system includes one or more measures that have been created, reviewed, and/or scored by specialty professionals external to the program. Such professionals include those with relevant specialized expertise whose primary responsibility is not to the program/unit, such as field-based master teachers, clinical teachers, intern supervisors, and/or supervisors/employers of program candidates/graduates. Programs may include external performance indices (where appropriate).
- (5) The assessment system is clearly delineated. Measures and associated criteria or rubrics (including minimal proficiency levels), as well as policies and practices for obtaining and using results, are described in program documents in a manner that candidates and other stakeholders can understand. Candidates are made aware of program standards and assessment requirements to which they will be held and are provided with models and/or examples of performance and the instruction and support needed to attain such levels. Programs are encouraged to develop a concise guide for candidates that outlines the benchmark assessments that occur in the program and the nature of such assessments.
- (6) The assessment methods and corresponding criteria included in the system are sufficiently comprehensive and rigorous to make important decisions about the proficiencies of candidates and to safeguard those they may potentially serve. Critical decision-making points are delineated in the system. Decisions that are made reflect the application of relevant criteria and use of results in a manner that discriminates acceptable versus unacceptable performance. Benchmark assessments can be used for critical decision-making and should discriminate between acceptable and unacceptable candidate performance.
- (7) The system includes policies and procedures for the gathering, use, storage, and reporting of individual results. Such policies address the rights of individuals (e.g., those afforded candidates by the Family Educational Rights and Privacy Act; confidentiality/anonymity of survey responses).

- (8) The system includes a structure and procedures for sampling, analyzing, summarizing, and reporting aggregated results. Data are gathered on an ongoing basis and are summarized in a manner that reflects pass rates, the range of performances, and/or the "typical" or "average" performance (e.g., mean, median, or modal performance) as appropriate to the types of measures. Summaries of results are provided to key program stakeholders in a clear manner that acknowledges the source(s) and limitations of the data, data collection and reporting time frame, program strengths, and areas of needed or potential improvement. Information following these criteria provide examples and discussion of how programs can report evidence for each standard on a variety of assessments.
- (9) The program and its assessment system facilitate the use of results for individual program improvement. Assessment results are regularly reviewed in relation to program goals and objectives as well as to relevant state and national standards and stimulate changes designed to optimize success. Programs must demonstrate how assessment data influence program content and/or structure relative to meeting standards for each ISTE/NCATE program
- (10) The system has a mechanism and procedures for evaluating and improving itself and its component assessment methods. Evidence of the reliability and validity of the system and its component measures is gathered and used to make decisions about their ongoing use and/or revision. Evidence should address the ability of the system to comprehensively assess performance in a credible manner that is valid, fair, and unbiased..

The institution's submission of evidence to document teacher candidate proficiencies should provide information (data, summaries, and limited examples/artifacts) to document accomplished teacher candidate skills, knowledge, and dispositions and their effect on student learning. Achievement of these proficiencies relative to the 8 standards in each of the selected programs will serve as the basis for judgments about program quality and compliance with the ISTE/NCATE programs. Program faculty might find it helpful to organize their evidence for each standard by develop two types of summary tables: 1) ISTE Standards and Task Summary for Portfolio (See Appendix II.); and 2) Summary of Candidate Performance for Educational Computing and Technology Programs (pp. 47-53)

### **Summary of Assessment Data Aggregated by Standard**

The second table that may be helpful to programs in summarizing candidate performance provides a summary of the assessment data aggregated across all candidates by standard. The table may represent the 1) major benchmark assessments, 2) the benchmark assessment point in the program, 3) the assessment tools, and 4) the number or percent of candidates who were judged "approaching", "meeting", or "exceeding" standards as in the following example of a Summary of Candidate Performance for Educational Computing and Technology Programs.

Example:

# Summary of Candidate Performance for Educational Computing and Technology Programs

Program:	Technology Facilitation (TF) - Endorsement Technology Leadership (TL) - Advanced		
Number of	candidates completing program: (for 1 year from	to	)

## PREREQUISITE ADMISSION CRITERIA FOR TECHNOLOGY FACILITATION AND LEADERSHIP PROGRAMS

	Assessment Point	Assessment Tool(s) (provide link to tool)	Performance E. tes performing a Meets	
. General Admission	Admission	A.1. Written exam (K)		
Criteria	to Program	1.2 (27)		
Candidates are assessed using general admission criteria determined by the		A.2. GPA (K)		
university and unit.		A.3. Interview (K, D)		
university and unit.		A.3. Interview (K, D)		
		A.4. GRE scores (K)		
3. Prerequisite Technology	Admission	Evidence collected from		
Foundation Standards: NETS for	to Program	assessment of activities and		
All Teachers		artifacts required by program in		
Candidates are assessed for their		their "Summary of NETS		
knowledge, skills, and dispositions of		Experiences" can be aggregated		
the NETS for Teachers standards prior		for each standard and reported		
to program admission. Candidates not		as evidence of candidate		
meeting Prerequisite Foundation Standards are provided opportunities		performance.		
to develop their skills and be				
reassessed or are counseled out of the				
program.				
program.				
Technology Operations and	Admission	NETS Performance Assessment		
Concepts for all teachers	to Program	Rubric		
I. Planning and Designing Learn-ing	Admission	No treat		
Environments and Experiences for	to Program	Multiple measures: for example: exams, portfolios		
all teachers (S, K)  II. Teaching, Learning, and the	Admission	of artifacts assessed by rubrics,		
Curriculum for all teachers (S,K)	to Program	observation tools, self-		
V. Assessment and Evaluation for all	Admission	assessment tools, interviews,		
teachers (S,K, D)	to Program	grades.		
7. Productivity and Professional	Admission	1 ~		
Practice for all teachers (S, K, D)	to Program			
7I. Social, Ethical, Legal, and Human	Admission	<b>†</b>		
Issues for all teachers (S, K, D)	to Program			

Activity	Assessment Point	Assessment Tool(s) (provide link to tool)	Performance Ex tes performing a Meets	
A. Technology Facilitation Experiences. Candidates Technology Facilitation knowledge, skills, and dispositions are assessed prior to the capstone field experience.	Prior to capstone field experience	Evidence collected from assessment of activities and artifacts required by program in their "Summary of Technology Facilitation Experiences" can be aggregated for each standard and reported as evidence of candidate performance.  Multiple measures: for example: exams, portfolios of artifacts assessed by rubrics, observation tools, self-assessment tools, interviews, grades.		
I. Technology Operations and Concepts for Technology Facilitation		NETS Rubric - Standard I. (list assessment tools)		
II. Planning and Designing Learn-ing Environments and Experiences for Technology Facilitation (S, K)		NETS Rubric - Standard II. (list assessment tools)		
III. Teaching, Learning, and the Curriculum for Technology Facilitation (S.K)		NETS Rubric - Standard III. (list assessment tools)		
IV. Assessment and Evaluation for Technology Facilitation (S,K, D) V. Productivity and Professional Practice for Technology Facilitation		NETS Rubric - Standard IV. (list assessment tools) NETS Rubric - Standard V. (list assessment tools)		
(S, K, D)  VI. Social, Ethical, Legal, and Human Issues for Technology Facilitation (S, K, D)		NETS Rubric - Standard VI. (list assessment tools)		
VII.Procedures, Policies, Planning, and Budgeting for Technology Environments for Technology Facilitation		NETS Rubric - Standard VII. (list assessment tools)		
VIII.Leadership and Vision for Technology Facilitation		NETS Rubric - Standard VIII.		

Activity	Assessment Point	Assessment Tool(s) (provide link to tool)	Performance E es performing o Meets	
A. Technology Facilitation Field Experiences. Candidates are assessed for their knowledge, skills, and dispositions at the completion of their capstone field experience.	Completion of capstone field experience	Evidence collected from assessment of activities and artifacts required by program in their "Summary of Technology Facilitation Field Experiences" can be aggregated for each standard and reported as evidence of candidate performance.	 cos	
I. Technology Operations and Concepts for Technology Facilitation		NETS Rubric - Standard I. (list assessment tools)		
II. Planning and Designing Learning Environments and Experiences for Technology Facilitation (S, K)		NETS Rubric - Standard II. (list assessment tools)		
III. Teaching, Learning, and the Curriculum for Technology Facilitation (S,K)		NETS Rubric - Standard III. (list assessment tools)		
IV. Assessment and Evaluation for Technology Facilitation (S,K, D)		NETS Rubric - Standard IV. (list assessment tools)		
V. Productivity and Professional Practice for Technology Facilitation (S, K, D)		NETS Rubric - Standard V. (list assessment tools)		
VI. Social, Ethical, Legal, and Human Issues for Technology Facilitation (S, K, D)		NETS Rubric - Standard VI. (list assessment tools)		
VII.Procedures, Policies, Planning, and Budgeting for Technology Environments for Technology Facilitation		NETS Rubric - Standard VII. (list assessment tools)		
VIII.Leadership and Vision for Technology Facilitation		NETS Rubric - Standard VIII. (list assessment tools)		

### **Summary of Candidate Performance**

Number of candidates completing program:	(for 1 year from	_ to)
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### TECHNOLOGY LEADERSHIP ADVANCED PROGRAM CRITERIA

Assessment Point	Assessment Tool(s) (provide link to tool)	% of candida	tes performing a	ıt each level
Admission to Program	A.1. Written exam (K)	Approaches	Meets	Exceeds
	A.2. GPA (K)  A.3. Interview (K, D)			
	A.4. GRE scores (K)			
	A.5. Teaching Certificate			
Admission to Program	Evidence collected from assessment of activities and artifacts required by program in their "Summary of Technology Facilitation Experiences" can be aggregated for each standard and reported as evidence of candidate performance. (list assessment tools)			
	Point  Admission to Program  Admission	Admission to Program  A.1. Written exam (K)  A.2. GPA (K)  A.3. Interview (K, D)  A.4. GRE scores (K)  A.5. Teaching Certificate  Admission to Program  Evidence collected from assessment of activities and artifacts required by program in their "Summary of Technology Facilitation Experiences" can be aggregated for each standard and reported as evidence of candidate performance.	Admission to Program  A.1. Written exam (K)  A.2. GPA (K)  A.3. Interview (K, D)  A.4. GRE scores (K)  A.5. Teaching Certificate  Admission to Program  Evidence collected from assessment of activities and artifacts required by program in their "Summary of Technology Facilitation Experiences" can be aggregated for each standard and reported as evidence of candidate performance.	Admission to Program

Activity	Assessment Point	Assessment Tool(s) (provide link to tool)	% of candidat	Performance I es performing	at each level
A. Technology Leadership	admission to	Evidence collected from	Approaches	Meets	Exceeds
Experiences. Candidates	capstone	assessment of activities and			
Technology Facilitation	field	artifacts required by program in			
knowledge, skills, and	experience	their "Summary of Technology			
dispositions are assessed prior to	caperiones	Facilitation Experiences" can be			
the capstone field experience.		aggregated for each standard and			
		reported as evidence of candidate			
		performance.			
I. Technology Operations and		NETS Rubric - Standard I.			
Concepts for Technology		(list assessment tools)			
Leadership		,			
II. Planning and Designing Learn-		NETS Rubric - Standard II.			
ing Environments and		(list assessment tools)			
Experiences for Technology					
Leadership					
(S, K)					
III. Teaching, Learning, and the		NETS Rubric - Standard III.			
Curriculum for Technology		(list assessment tools)			
Leadership (S,K)					
IV. Assessment and Evaluation for		NETS Rubric - Standard IV.			
Technology Leadership (S,K,		(list assessment tools)			
D)					
V. Productivity and Professional		NETS Rubric - Standard V.			
Practice for Technology		(list assessment tools)			
Leadership (S, K, D)					ļ
VI. Social, Ethical, Legal, and		NETS Rubric - Standard VI.			
Human Issues for Technology		(list assessment tools)			
Leadership (S, K, D)					
VII.Procedures, Policies, Planning,		NETS Rubric - Standard VII.			
and Budgeting for Technology		(list assessment tools)			
Environments for Technology					
Leadership					
VIII.Leadership and Vision for		NETS Rubric - Standard VIII.			
Technology Leadership		(list assessment tools)			

Activity	Assessment Point	Assessment Tool(s) (provide link to tool)		Performance E. es performing a	
		,,,,	Approaches	Meets	Exceeds
A. Technology Leadership Field Experiences. Candidates are assessed for their knowledge, skills, and dispositions at the completion of their capstone field experience.	Completion of capstone field experience	Evidence collected from assessment of activities and artifacts required by program in their "Summary of Technology Leadership Field Experiences" can be aggregated for each standard and reported as evidence of candidate performance.			
I. Technology Operations and Concepts for Technology Leadership		NETS Rubric - Standard I. (list assessment tools)			
II. Planning and Designing Learn- ing Environments and Experiences for Technology Leadership (S, K)		NETS Rubric - Standard II. (list assessment tools)			
III. Teaching, Learning, and the Curriculum for Technology Leadership (S,K)		NETS Rubric - Standard III. (list assessment tools)			

IV. Assessment and Evaluation for Technology Leadership (S,K,D)	NETS Rubric - Standard IV. (list assessment tools)	
V. Productivity and Professional Practice for Technology Leadership (S, K, D)	NETS Rubric - Standard V. (list assessment tools)	
VI. Social, Ethical, Legal, and Human Issues for Technology Leadership (S, K, D)	NETS Rubric - Standard VI. (list assessment tools)	
VII.Procedures, Policies, Planning, and Budgeting for Technology Environments for Technology Leadership	NETS Rubric - Standard VII. (list assessment tools)	
VIII.Leadership and Vision for Technology Leadership	NETS Rubric - Standard VIII. (list assessment tools)	

A short explanatory narrative or summary should accompany the tables of data. When data is aggregated to report candidate performance, additional information should be added to make the data easier to understand. For example, the summary data will be more useful if the reviewer is told how may years the data has been collected, whether the data represents an average, percentage, or raw number. These data can reflect pass rates, the range of performances, typical or average performance, frequencies or other summaries that are appropriate to the assessment. The outcomes and their rubrics that accompany each standard should serve as a reference point for determining if candidates meet each standard.

Both of these summary documents can be linked from the standards matrix to provide evidence that standards are being met. Additional links to the activity rubric or assessment tool and a few samples of candidate work to illustrate the types of assessment, the dept of responses expected of candidates, and different levels of candidate performance (poor, approaching, meets, exceeds). The intent of the samples is to add depth to the aggregated and interpreted summaries of candidates' knowledge and performance by demonstrating the quality of candidate responses and by illustrating the multiple types of information that the program gathers about candidate proficiencies. Artifacts requiring hours of review (such as, videos, research papers, and portfolios) should be accompanied by the rubric or criteria used to judge the artifact as reviewers will not review these in depth, but will instead, look at the relationship of the product, the criteria used to measure the product, and the alignment of the rubric to the standards being addressed.

The narrative summarizing the aggregated tables of information are critical to the explanation of your assessment system for each program and to convincing the reviewers that the data summaries and evidence you have provided indeed prove that the program merits national recognition.

### Other Requirements of the Program Report

The program report can be submitted either in paper form or preferably in electronic format. It is essential, if submitting electronically, that the report be either on a CD-ROM recorded in a format readable by both Mac and Windows; or in PDF format. Whether in paper or electronic format, the following parts must be included.

- 1. Title page
- 2. Table of Contents
- 3. All items requested on the Cover Sheet
- 4. Continuous page numbering
- 4. Some means of securing the pages if in paper format
- 5. Artifacts should be numbered and referred to by the number when referencing them in the matrix
- 6. Program reports should be single-sided, if in paper format (4 copies)

When referring to the standards be sure to use the abbreviations for the program levels:

#### Examples:

STANDARD STANDARD & INDICATOR ABBREVIATION REFERANT

.....

NETS-I.A National Educational Technology Standards (foundations for all

teachers), Standard I., Indicator A (Admission to either program should

verify that candidates have met the NETS for Teachers

(http://cnets.iste.org)

TF-III.B. Technology Facilitation Standard III., Performance Indicator B

TL-II.C. Technology Leadership Standard II., Performance Indicator C

A well-assembled Program Report will assist the reviewers in completing an accurate and timely review.

The individual designated to oversee the development of the Program Report should consult with the institution's NCATE representative regarding the official NCATE submission deadlines. The submission dates for materials to reach NCATE are February 1 or September 15. In general, four copies of paper reports or CD-ROMs must be sent to NCATE eighteen months prior to the institution's scheduled NCATE visit if the program is submitting a Program Report for the first time. If there are questions regarding the exact due date, consult the NCATE website for the exact due date. An earlier submission of the Program Report allows time for a rejoinder to be submitted if the program does not receive national approval upon first submission.

### PROCESS FOR REVIEW OF INSTITUTIONAL PROGRAM EVIDENCE

The International Society for Technology n Education (ISTE) Accreditation and Standards Committee annually reviews the ISTE Guidelines. This committee is comprised of members recommended by the Accreditation and Standards Committee Chair and appointed by the President and approved by the Board of Directors of ISTE. The present committee membership consists of individuals with experience in graduate and undergraduate teacher education, computer science, precollege instruction, administration, technology coordination at the state, regional, and district levels. The Program Review Coordinator is appointed by the Committee Chair and works closely with the Committee in the standards development, program review, Program Reviewer Training, and state review process.

The process for review of institutional program evidence begins with delivery of the program report to the ISTE Program Review Coordinator. Program evidence may be submitted electronically (via email attachment [in PDF or MS Word format], Web link, CD) or in paper form (4 copies). Electronic submission is preferred. In general, the procedure for handling the review process includes the following steps:

- 1. NCATE receives institutional program evidence and state partnership proposals
- 2. Program evidence and state proposals are forwarded to the ISTE Program Review Coordinator
- 3. The Program Review Coordinator assigns 3 readers to evaluate each proposal
- 4. Readers review program proposals/state partnership proposals, rate the program/proposal, and return the evaluation to the Program Review Coordinator.

- 5. The Program Review Coordinator compiles results from the three reviewers and writes the evaluation report
- 6. The final report is sent to NCATE, to the Chair of the Accreditation and Standards Committee, and one copy is filed
- 7. Notation of consistency of three evaluators and any obvious misunderstandings of guidelines that need addressing are made and conveved to the reviewers.
- 8. A summary of results of accreditation reviews are reported at least yearly to the ISTE Board
- 9. Institutions not meeting standards may submit a rejoinder. Review of the rejoinder will be done by the same reviewers who read the initial report. Rejoinders should be completed before the on-site BOE visit.

The institution's program report is distributed to individuals trained as ISTE Program Review Readers. Each reviewer will evaluate the evidence submitted applying the rubric scoring rules as described in the Supporting Explanation accompanying each standards matrix. In addition to the standards matrix, the reviewers will provide narrative responses for the contextual information requested on the Cover Sheet and will provide summaries of strengths and weaknesses they discover from the combined review of performance data and contextual information provided.

The three reports will be submitted to the Program Review Coordinator where they will be compiled and reviewed for consistency. Reviewers are required to provide explanations for any indicators that they evaluate as scoring less that the "target" level. The final report will summarize perceived strengths and weaknesses reported through the review process and compiled ratings and comments relating specifically to the standards rubrics. Compilation of the scores earned and strengths and weaknesses suggested from evaluation of the contextual information received, the Program Review Coordinator will inform NCATE of its recommendation regarding national recognition for each program reviewed.

#### PROCESS FOR REVIEW OF STATE PROGRAM APPROVAL

If a state chooses the NCTE Option, the review process will be used to determine whether the individual institutions merit national recognition.

If a state chooses the State option, programs would receive national recognition through state program approval processes. Under theses circumstances the State must provide information intended to show how their standards are aligned with the ISTE standards. States will provide the following three sets of documentation in their proposal:

First, information on the contextual background of the state standards:

- Identification of the specific program addressed and the SPA standards with which it corresponds;
- A description of what the state does to ensure that educators are prepared to function effectively, including any testing requirements for internships and licensure in the specialty area;
- A description of how the state standards were prepared, including background history, key participants, involvement of specialty organization experts, roles of various state agencies, and a summary of anticipated changes in the near future;
- A description of any unique state or local circumstances that the specialty organization should take into consideration when reviewing the state submission. This is especially important in instances where law and other mitigating circumstances could affect the state's ability to parallel the SPA standards or to provide some of the information described above.

Second, information on alignment of the state standards with the specialty standards:

 A matrix that facilitates direct comparison of state standards describing teacher candidate knowledge and skills with each SPA standard.  Information that states are expected to provide for review of their teacher candidate standards by SPAs is different from the information that institutions provide for review of programs by SPAs. Institutions summarize assessment results that demonstrate candidate proficiencies in relation to the standards. By contrast, the purpose of the state standards alignment submission is to show the comparability or similarity of state standards with the SPA standards.

Third, copies of state program approval reports be provided to ISTE. Specialty organizations should expect information to be submitted under NCATE 2000 state option partnerships about state program approval processes and state use of candidate performance information as follows:

- A description of the state's quality assurance systems for institutions and individuals
  participating in program approvals [including (1) selection, training, and evaluation of
  reviewers, (2) monitoring of confidentiality and objectivity, (3) reviewing frequency of
  approval, disapproval, conditional approval or deferment, and (4) procedures for
  resolving conflicts or redressing unfavorable actions.]
- The context for the state's program approval process, including any unique circumstances that might affect SPA understanding of what the state is doing.
- A description of how the state plans to collect candidate performance information from multiple forms of assessments, and use that information (through program approval, licensure or other functions), or how it will foster collection and use of such information by teacher preparation programs.

ISTE State Reviewers will review the materials submitted by the State using the applying the following criteria:

### States must use a consistent review process across all institutions and programs:

- A recognized state education agency or professional standards board should oversee and evaluate the review process.
- Written procedures should clarify the review process sufficiently to ensure a consistent application of standards in every review.
- The qualifications and training of those conducting reviews should be sufficiently specific to ensure consistency across reviewers.

### States must ensure unbiased, objective decisions regarding program approval or non-approval:

Conflicts of interest should be avoided in reviews: review should be conducted by a team that
includes individuals with no present or past affiliation or bias toward the institution, and,
whenever possible, individuals from other states should either conduct program reviews or
have a significant role in reviewing program materials and in making decisions regarding
program adherence to professional guidelines.

## State program reviews must be conducted by qualified persons, based upon a thorough understanding and application of the ISTE program standards:

- Those conducting program reviews should be trained by a relevant specialized professional association.
- Qualifications of reviewers should be periodically evaluated by the appropriate specialized professional association to ascertain currency, accuracy, thoroughness, and fairness in interpreting and applying guidelines.

### State review decisions must be based on accurate information regarding program policies and procedures:

- The review process should include a thorough study of written information which addresses the relevant specialty quidelines.
- Reviewers should have sufficient time to study program information prior to any site visit.

- Site visits may be used to validate and further analyze written program information and determine more fully the consistency of program practices with specialty guidelines.
- Institutions should have the opportunity to issue a rejoinder to the review, clarifying or correcting information regarding program policies or practices.
- The final decision regarding program approval or non-approval should take such information into account.

### State review decisions must be communicated clearly and provide feedback useful for program development:

- The review should culminate in a clearly written report that indicates the overall program
  decision (merits national recognition or not) and whether each of the specialty association
  standards has been met or not. The report should also provide information regarding
  perceived program strengths and/or weaknesses.
- Comments should be specific enough to serve as the basis for program development.
- The report should be provided to the administrative unit/program in a timely manner.
- Copies of reports should be maintained by the organization, agency, or unit conducting the review and should be provided to the appropriate NCATE constituent specialized professional association (ISTE Program Review Coordinator).

### ANALYSIS OF COMMONALITIES AND DIFFERENCES WITH EXISTING NCATE-APPROVED PROGRAM STANDARDS RELATING TO TECHNOLOGY

There are four SPA organizations with NCATE-approved standards that specifically address related, but divergent areas of technology preparation. Because these organizations have major threads of technology preparation in their programs, there are some areas of overlap. However, each prepares candidates for fields of service that are quite different from one another, or focuses on preparing candidates for differing positions of teaching or leadership in the field.

The International Technology Education Association (ITEA/CTTE) prepares candidates to serve as teachers in K-12 schools focusing on technology as it relates to four major areas of practice in the use of application of technology: transportation, manufacturing, communications, and construction. The curriculum for this area of study focuses on technology as it is applied in these areas. Programs/states with universities focusing on technology as it relates to the above four major areas should apply to ITEA/CTTE for program approval.

The Association of Educational Communications Technology (AECT) standards emphasize design, development, utilization, management, and evaluation as they relate to a variety of communications and information media. Their programs prepare instructional media specialists, for positions in a broad spectrum of educational, instructional, business, military, government, and health/community services areas. Those programs/states with universities focusing on preparation of Instructional Media Specialists, Media Center Directors, Curriculum Developers, School Media Specialists, University Media Administration Specialists, should consider applying for national recognition using the AECT Standards.

The International Society for Technology in Education (ISTE) Technology Facilitation program standards emphasize preparation of candidates to serve as building/campus-level technology facilitators. Candidates completing this program will exhibit knowledge, skills, and dispositions equipping them to teach technology applications; demonstrate effective use of technology to support student learning of content; and provide professional development, mentoring, and basic technical assistance for other teachers who require support in their efforts to apply technology to support student learning. The ISTE Technology Leadership standards prepare candidates to serve as technology directors, coordinators, or specialists. Special preparation in computing systems, facilities planning and management, instructional program development, staff development, and other advanced applications of technology to support student learning and assessment prepare

candidates to serve in technology-related leadership positions at district, regional, and/or state levels. The ISTE Secondary Computer Science Education program standards prepare candidates to serve as teachers of computer science in secondary schools. They focus on preparing their students in the more technical aspects of computing such as problem analysis, algorithm selection and evaluation; program design, implementation, specification, and verification; and systems analysis. The focus of these sets of standards indicate that those programs/states with universities focusing on preparation of Technology Facilitators at the building-level, Technology Directors at the district, state, or regional level, or Secondary Computer Science Teachers should apply for national recognition using the ISTE Standards.

Programs focusing on preparing building-level leaders whose primary job responsibility is librarianship, but who also serves as a building-level instructional media resource person within the library environment, should apply for national recognition using the American Library Association standards.

### APPENDIX I.A. Alignment of ISTE National Educational Technology Standards with Proposed Programs

NETS Foundations Prerequisite Preparation	Educational Computing and Technology Facilitation (TF)	Educational Computing and Technology Leadership (TL)
Technology Operations and Concepts. Teachers     demonstrate a sound understanding of technology     operations and concepts. Teachers:	TF-I. Technology Operations and Concepts. Educational technology facilitators demonstrate an in-depth understanding of technology operations and concepts. Educational technology facilitators:	TL-1. Technology Operations and Concepts. Educational technology leaders demonstrate an advanced understanding of technology operations and concepts. Educational technology leaders:
A. Demonstrate introductory knowledge, skills, and understanding of concepts related to technology (as described in the ISTE National Education Technology Standards for Students).	A. Demonstrate knowledge, skills, and understanding of concepts related to technology (as described in the ISTE National Educational Technology Standards for Teachers).	A. Demonstrate knowledge, skills, and understanding of concepts related to technology (as described in the ISTE National Education Technology Standards for Teachers).
	Assist teachers in the ongoing development of knowledge, skills, and understanding of technology systems, resources, and services that are aligned with district and state technology plans	Identify and evaluate components needed for the continual growth of knowledge, skills, and understanding of concepts related to technology.
	Provide assistance to teachers in identifying technology systems, resources, and services to meet specific learning needs.	Offer a variety of professional development opportunities that facilitate the ongoing development of knowledge, skills, and understanding of concepts related to technology.
B. Demonstrate continual growth in technology knowledge and skills to stay abreast of current and emerging	B. Demonstrate continual growth in technology knowledge and skills to stay abreast of current and emerging technologies.	B. Demonstrate continual growth in technology knowledge and skills to stay abreast of current and emerging technologies.
technologies.	<ol> <li>Model appropriate strategies essential to continued growth and development of the understanding of technology operations and concepts.</li> </ol>	Offer a variety of professional development opportunities that facilitate the continued growth and development of the understanding of technology operations and concepts.
NETS Foundations Prerequisite Preparation	Educational Computing and Technology Facilitation (TF)	Educational Computing and Technology Leadership (TL)
II. Planning and Designing Learning Environments and Experiences. Teachers plan and design effective learning environments and experiences supported by technology. Teachers:	TF-II. Planning and Designing Learning Environments and Experiences. Educational technology facilitators plan, design, and model effective learning environments and multiple experiences supported by technology. Educational technology facilitators:	TL-II. Planning and Designing Learning Environments and Experiences.  Educational Technology Leaders assist by planning, designing, and modeling effective learning environments and experiences supported by technology at the district/ state/ regional level.  Educational Technology Leaders:
A. Design developmentally appropriate learning opportunities that apply technology-enhanced instructional strategies to support the diverse needs of learners.	A. Design developmentally appropriate learning opportunities that apply technology-enhanced instructional strategies to support the diverse needs of learners.	A. Design developmentally appropriate learning opportunities that apply technology-enhanced instructional strategies to support the diverse needs of learners.
	Provide resources and feedback to teachers as they create developmentally appropriate curriculum units that use technology.	Research and disseminate project-based instructional units modeling appropriate uses of technology to support learning.
	Consult with teachers as they design methods and strategies for teaching computer/technology concepts and skills within the context of classroom learning.	Identify and evaluate methods and strategies for teaching computer/technology concepts and skills within the context of classroom learning and coordinate dissemination of best practices at the district/state/regional level.
	Assist teachers as they use technology resources and strategies to support the diverse needs of learners including adaptive and assistive technologies.	Stay abreast of current technology resources and strategies to support the diverse needs of learners including adaptive and assistive technologies and disseminate information to teachers.
Apply current research on teaching and learning with technology when planning learning environments and	B. Apply current research on teaching and learning with technology when planning learning environments and experiences.	B. Apply current research on teaching and learning with technology when planning learning environments and experiences.
experiences.	Assist teachers as they apply current research on teaching and learning with technology when planning learning environments and experiences.	Locate and evaluate current research on teaching and learning with technology when planning learning environments and experiences.

NETS Foundations Prerequisite Preparation	Educational Computing and Technology Facilitation (TF)	Educational Computing and Technology Leadership (TL)
C. Identify and locate technology resources and evaluate them for accuracy and suitability.	C. Identify and locate technology resources and evaluate them for accuracy and suitability.	C. Identify and locate technology resources and evaluate them for accuracy and suitability.
	Assist teachers as they identify and locate technology resources and evaluate them for accuracy and suitability based on district and state standards.	Identify technology resources and evaluate them for accuracy and suitability based on the content standards.
	Model technology integration using resources that reflect content standards.	Provide ongoing appropriate professional development to disseminate the use of technology resources that reflect content standards.
D. Plan for the management of technology resources within the context of learning activities.	D. Plan for the management of technology resources within the context of learning activities.	D. Plan for the management of technology resources within the context of learning activities.
within the context of learning activities.	<ol> <li>Provide teachers with options for the management of technology resources within the context of learning activities.</li> </ol>	Identify and evaluate options for the management of technology resources within the context of learning activities.
Plan strategies to manage student learning in a technology-enhanced environment.	E. Plan strategies to manage student learning in a technology-enhanced environment.	Plan strategies to manage student learning in a technology-enhanced environment.
	<ol> <li>Provide teachers with a variety of strategies to use to manage student learning in a technology-enhanced environment and support them as they implement the strategies.</li> </ol>	Continually evaluate a variety of strategies to manage student learning in a technology-enhanced environment and disseminate through professional development activities.
Identify and apply instructional design principles     associated with the development of technology	F. Identify and apply instructional design principles     associated with the development of technology     resources.	Identify and apply instructional design principles associated with the development of technology resources.
resources.	<ol> <li>Assist teachers as they identify and apply instructional design principles associated with the development of technology resources.</li> </ol>	Identify and evaluate instructional design principles associated with the development of technology resources.
NETS Foundations Prerequisite Preparation	Educational Computing and Technology Facilitation (TF)	Educational Computing and Technology Leadership (TL)
III. Teaching, Learning, and the Curriculum. Teachers implement curriculum plans that include methods and strategies for applying technology to maximize student learning. Teachers:	TF-III. Teaching, Learning, and the Curriculum. Educational technology facilitators apply and implement curriculum plans that include methods and strategies for utilizing technology to maximize student learning. Educational technology facilitators:	TL-III. Teaching, Learning, and the Curriculum. Educational technology leaders model, design, and disseminate curriculum plans that include methods and strategies for applying technology to maximize student learning. Educational technology leaders will:
A. Plan and implement technology-enhanced experiences	A. Facilitate technology-enhanced experiences that address content standards and student technology standards.	A. Facilitate technology-enhanced experiences that address content standards and student technology standards.
that address best practices research and support content standards and student technology standards.	<ol> <li>Use methods and strategies for teaching concepts and skills that support integration of technology productivity tools (refer to NETS for Students).</li> </ol>	Design methods and strategies for teaching concepts and skills that support integration of technology productivity tools (refer to NETS for Students).
	Use and apply major research findings and trends     related to the use of technology in education to     support integration throughout the curriculum.	Design methods for teaching concepts and skills that support integration of communication tools (refer to NETS for Students).
	<ol><li>Use methods and strategies for teaching concepts and skills that support integration of research tools (refer to NETS for Students).</li></ol>	<ol> <li>Design methods and strategies for teaching concepts and skills that support integration of research tools (NETS refer to for Students).</li> </ol>
	<ol> <li>Use methods and strategies for teaching concepts and skills that support integration of problem solving/ decision-making tools (refer to NETS for Students).</li> </ol>	<ol> <li>Design methods and model strategies for teaching concepts and skills that support integration of problem solving/ decision- making tools (refer to NETS for Students).</li> </ol>
	<ol> <li>Use methods and strategies for teaching concepts and skills that support use of media-based tools such as television, audio, print media, and graphics.</li> </ol>	<ol> <li>Design methods and model strategies for teaching concepts and skills that support use of media-based tools such as television, audio, print media, and graphics.</li> </ol>
	<ol> <li>Use and describe methods and strategies for teaching concepts and skills that support use of distance learning systems appropriate in a school environment.</li> </ol>	<ol> <li>Evaluate methods and strategies for teaching concepts and skills that support use of distance learning systems appropriate in a school environment.</li> </ol>

NETS Foundations Prerequisite Preparation	Educational Computing and Technology Facilitation (TF)	Educational Computing and Technology Leadership (TL)
	7. Use methods for teaching concepts and skills that support use of web-based and non web- based authoring tools in a school environment.	<ol> <li>Design methods and model strategies for teaching concepts and skills that support use of web-based and non web-based authoring tools in a school environment.</li> </ol>
B. Use technology to support learner-centered strategies that address the diverse needs of students.	B. Use technology to support learner-centered strategies that address the diverse needs of students.	B. Use technology to support learner-centered strategies that address the diverse needs of students.
ulat address the diverse fleeds of studelits.	Use methods and strategies for integrating technology resources that support the needs of diverse learners including adaptive and assistive technology.	<ol> <li>Design methods and strategies for integrating technology resources that support the needs of diverse learners including adaptive and assistive technology.</li> </ol>
C. Apply technology to develop students' higher order	C. Apply technology to demonstrate students' higher order skills and creativity.	C. Apply technology to develop students' higher order skills and creativity.
skills and creativity.	Use methods and facilitate strategies for teaching problem solving principles and skills using technology resources.	<ol> <li>Design methods and model strategies for teaching hypermedia development, scripting, and/or computer programming, in a problem-solving context in the school environment.</li> </ol>
D. Manage student-learning activities in a technology-	D. Manage student-learning activities in a technology- enhanced environment.	<ul> <li>D. Manage student-learning activities in a technology-enhanced environment.</li> </ul>
enhanced environment.	Use methods and classroom management strategies for teaching technology concepts and skills in individual, small group, classroom, and/or lab settings.	<ol> <li>Design methods and model classroom management strategies for teaching technology concepts and skills used in P-12 environments.</li> </ol>
Use current research and district/region/state/national content and technology standards to build lessons and content first better.	E. Use current research and district/region/state/national content and technology standards to build lessons and units of instruction.	E. Use current research and district/region/state/national content and technology standards to build lessons and units of instruction.
units of instruction.	Describe and identify curricular methods and strategies that are aligned with district/region/state/national content and technology standards.	<ol> <li>Disseminate curricular methods and strategies that are aligned with district/region/state/national content and technology standards.</li> </ol>
	Use major research findings and trends related to the use of technology in education to support integration throughout the curriculum.	<ol><li>Investigate major research findings and trends related to the use of technology in education to support integration throughout the curriculum.</li></ol>
IV. Assessment and Evaluation. Teachers apply technology to facilitate a variety of effective assessment and evaluation strategies. Teachers:	TF-IV. Assessment and Evaluation. Educational Technology facilitators apply technology to facilitate a variety of effective assessment and evaluation strategies. Educational technology facilitators:	TL-IV. Educational technology leaders communicate research on the use of technology to implement effective assessment and evaluation strategies. Educational technology leaders:
A. Apply technology in assessing student learning of subject matter using a variety of assessment techniques.	A. Apply technology in assessing student learning of subject matter using a variety of assessment techniques.	Apply technology in assessing student learning of subject matter using a variety of assessment techniques.
	Model the use of technology tools to assess student learning of subject matter using a variety of assessment techniques.	Facilitate the development of a variety of techniques to use technology to assess student learning of subject matter.
	Assist teachers in using technology to improve learning and instruction through the evaluation and assessment of artifacts and data.	<ol><li>Provide technology resources for assessment and evaluation of artifacts and data.</li></ol>
B. Use technology resources to collect and analyze data, interpret results, and communicate findings to improve instructional practice and maximize student learning.	B. Use technology resources to collect and analyze data, interpret results, and communicate findings to improve instructional practice and maximize student learning.	B. Use technology resources to collect and analyze data, interpret results, and communicate findings to improve instructional practice and maximize student learning.
	Guide teachers as they use technology resources to collect and analyze data, interpret results, and communicate findings to improve instructional practice and maximize student learning.	Identify and procure technology resources to aid in analysis and interpretation of data.

NETS Foundations Prerequisite Preparation	Educational Computing and Technology Facilitation (TF)	Educational Computing and Technology Leadership (TL)
C. Apply multiple methods of evaluation to determine students' appropriate use of technology resources for learning, communication, and productivity.	C. Apply multiple methods of evaluation to determine students' appropriate use of technology resources for learning, communication, and productivity.	C. Apply multiple methods of evaluation to determine students'     appropriate use of technology resources for learning, communication, and productivity.
	Assist teachers in using recommended evaluation strategies for improving students' use of technology resources for learning, communication, and productivity.	<ol> <li>Design strategies and methods for evaluating the effectiveness of technology resources for learning, communication, and productivity.</li> </ol>
	Examine and apply the results of a research project that includes evaluating the use of a specific technology in a P-12 environment.	Conduct a research project that includes evaluating the use of a specific technology in a P-12 environment.
NETS Foundations Prerequisite Preparation	Educational Computing and Technology Facilitation (TF)	Educational Computing and Technology Leadership (TL)
V. Productivity and Professional Practice. Teachers use technology to enhance their productivity and professional practice. Teachers:	TF-V. Productivity and Professional Practice. Educational technology facilitators apply technology to enhance and improve personal productivity and professional practice.  Educational technology facilitators:	TL-V. Productivity and Professional Practice. Educational technology leaders design, develop, evaluate and model products created using technology resources to improve and enhance their productivity and professional practice. Educational technology leaders:
A. Use technology resources to engage in ongoing professional development and lifelong learning.	A. Use technology resources to engage in ongoing professional development and lifelong learning.	A. Use technology resources to engage in ongoing professional development and lifelong learning.
	Identify resources and participate in professional development activities and professional technology organizations to support ongoing professional growth related to technology.	Design, prepare, and conduct professional development activities to present at the school/district level and at professional technology conferences to support ongoing professional growth related to technology.
	Disseminate information on district-wide policies for professional growth opportunities for staff, faculty, and administrators.	Plan and implement policies that support district-wide professional growth opportunities for staff, faculty, and administrators.
B. Continually evaluate and reflect on professional practice to make informed decisions regarding the use of technology in support of student learning.	B. Continually evaluate and reflect on professional practice to make informed decisions regarding the use of technology in support of student learning.	B. Continually evaluate and reflect on professional practice to make informed decisions regarding the use of technology in support of student learning.
	Continually evaluate and reflect on professional practice to make informed decisions regarding the use of technology in support of student learning.	Based on evaluations make recommendations for changes in professional practices regarding the use of technology in support of student learning.
Apply technology to increase productivity.	C. Apply technology to increase productivity.	C. Apply technology to increase productivity.
	Model advanced features of word processing, desktop publishing, graphics programs, and utilities to develop professional products.	Model the integration of data from multiple software applications using advanced features of applications such as word processing, database, spreadsheet, communication, and other tools into a product.
	<ol> <li>Assist others in locating, selecting, capturing, and integrating video and digital images, in varying formats for use in presentations, publications, and/or other products.</li> </ol>	Create multimedia presentations integrated with multiple types of data using advanced features of a presentation tool and model them to district staff using computer projection systems.
	Demonstrate the use of specific-purpose electronic devices (such as graphing calculators, language translators, scientific probeware, or electronic thesaurus) in content areas.	Document and assess field-based experiences and observations using specific-purpose electronic devices.
	<ol> <li>Use a variety of distance learning systems and use at least one to support personal and professional development.</li> </ol>	<ol> <li>Use distance learning delivery systems to conduct and provide professional development opportunities for students, teachers, administrators, and staff.</li> </ol>
	Use instructional design principles to develop     hypermedia and multimedia products to support     personal and professional development.	Apply instructional design principles to develop and analyze     substantive interactive multimedia computer-based instructional     products.

NETS Foundations Prerequisite Preparation	Educational Computing and Technology Facilitation (TF)	Educational Computing and Technology Leadership (TL)
	<ol> <li>Select appropriate tools for communicating concepts, conducting research, and solving problems for an intended audience and purpose.</li> </ol>	<ol> <li>Design and practice strategies for testing functions and evaluating technology use effectiveness of instructional products that were developed using multiple technology tools.</li> </ol>
	<ol> <li>Use examples of emerging programming, authoring, or problem solving environments that support personal and professional development.</li> </ol>	<ol> <li>Analyze examples of emerging programming, authoring or problem solving environments that support personal and professional development, and make recommendations for integration at school/district level.</li> </ol>
	<ol> <li>Set and manipulate preferences, defaults, and other selectable features of operating systems and productivity tool programs commonly found in P-12 schools.</li> </ol>	Analyze and modify the features and preferences of major operating systems and/or productivity tool programs when developing products to solve problems encountered with their operation and/or to enhance their capability.
D. Use technology to communicate and collaborate with peers, parents, and the larger community in order to nurture student learning.	D. Use technology to communicate and collaborate with peers, parents, and the larger community in order to nurture student learning.	D. Use technology to communicate and collaborate with peers, parents, and the larger community in order to nurture student learning.
	<ol> <li>Model the use of telecommunications tools and resources for information sharing, remote information access, and multimedia/hypermedia publishing in order to nurture student learning.</li> </ol>	Model and implement the use of telecommunications tools and resources to foster and support information sharing, remote information access, and communication between students, school staff, parents, and local community.
	<ol><li>Communicate with colleagues and discuss current research to support instruction, using applications including electronic mail, online conferencing, and web browsers.</li></ol>	Organize, coordinate, and participate in an online learning community related to the use of technology to support learning.
	<ol><li>Participate in online collaborative curricular projects and team activities to build bodies of knowledge around specific topics.</li></ol>	<ol> <li>Organize and coordinate online collaborative curricular projects with corresponding team activities/responsibilities to build bodies of knowledge around specific topics.</li> </ol>
	Design and maintain Web pages and sites that support communication between the school and community.	<ol> <li>Design, modify, maintain, and facilitate the development of Web pages and sites that support communication and information access between the entire school district and local/state/national/ international communities.</li> </ol>
NETS Foundations Prerequisite Preparation	Educational Computing and Technology Facilitation (TF)	Educational Computing and Technology Leadership (TL)
VI. Social, Ethical, Legal, and Human Issues. Teachers understand the social, ethical, legal, and human issues surrounding the use of technology in PK-12 schools and apply that understanding in practice. Teachers:	TF-VI. Social, Ethical, Legal, and Human Issues. Educational technology facilitators understand the social, ethical, legal, and human issues surrounding the use of technology in P-12 schools and assist teachers in applying that understanding in their practice. Educational technology facilitators:	TL-VI. Social, Ethical, Legal, and Human Issues. Educational technology leaders understand the social, ethical, legal, and human issues surrounding the use of technology in PK-12 schools and develop programs facilitating application of that understanding in practice throughout their district/ region/state. Educational technology leaders:
Model and teach legal and ethical practice related to technology use.	A. Model and teach legal and ethical practice related to technology use.	A. Model and teach legal and ethical practice related to technology use.
	<ol> <li>Develop strategies and provide professional development at the school/classroom level for teaching social, ethical, and legal issues and responsible use of technology.</li> </ol>	Establish and communicate clear rules, policies, and procedures to support legal and ethical use of technologies at the district/ region/state levels.
	<ol><li>Assist others in summarizing copyright laws related to use of images, music, video, and other digital resources in varying formats.</li></ol>	Implement a plan for documenting adherence to copyright laws.
Apply technology resources to enable and empower learners with diverse backgrounds, characteristics, and abilities.	B. Apply technology resources to enable and empower learners with diverse backgrounds, characteristics, and abilities.	B. Apply technology resources to enable and empower learners with diverse backgrounds, characteristics, and abilities.

NETS Foundations Prerequisite Preparation	Educational Computing and Technology Facilitation (TF)	Educational Computing and Technology Leadership (TL)
	<ol> <li>Assist teachers in selecting and applying appropriate technology resources to enable and empower learners with diverse backgrounds, characteristics, and abilities.</li> </ol>	<ol> <li>Communicate research on best practices related to applying appropriate technology resources to enable and empower learners with diverse backgrounds, characteristics, and abilities.</li> </ol>
	<ol> <li>Identify, classify, and recommend adaptive/assistive hardware and software for students and teachers with special needs and assist in procurement and implementation.</li> </ol>	Develop policies and provide professional development related to acquisition and use of appropriate adaptive/assistive hardware and software for students and teachers with special needs.
Identify and use technology resources that affirm diversity	C. Identify and use technology resources that affirm diversity.	C. Identify and use technology resources that affirm diversity.
	<ol> <li>Assist teachers in selecting and applying appropriate technology resources to affirm diversity and address cultural and language differences.</li> </ol>	<ol> <li>Communicate research on best practices related to applying appropriate technology resources to affirm diversity and address cultural and language differences.</li> </ol>
D. Promote safe and healthy use of technology resources.	D. Promote safe and healthy use of technology resources.	D. Promote safe and healthy use of technology resources.
	<ol> <li>Assist teachers in selecting and applying appropriate technology resources to promote safe and healthy use of technology.</li> </ol>	<ol> <li>Communicate research and establish policies to promote safe and healthy use of technology.</li> </ol>
Facilitate equitable access to technology resources for all students.	E. Facilitate equitable access to technology resources for all students.	E. Facilitate equitable access to technology resources for all students.
	Develop a summary of effective school policies and classroom management strategies for achieving equitable access to technology resources for students and teachers.	Use research findings in establishing policy and implementation strategies to promote equitable access to technology resources for students and teachers.
	TF-VII. Procedures, Policies, Planning and Budgeting for Technology Environments. Educational technology facilitators promote the development and implementation of technology infrastructure, procedures, policies, plans, and budgets for P-12 schools. Educational technology facilitators:	TL-VII. Procedures, Policies, Planning, and Budgeting for Technology Environments. Educational technology leaders coordinate development and direct implementation of technology infrastructure procedures, policies, plans, and budgets for P-12 schools. Educational technology leaders:
	A. Use the school technology facilities and resources to implement classroom instruction.	A. Use the school technology facilities and resources to implement classroom instruction.
	Use plans to configure software/computer/technology systems and related peripherals in laboratory, classroom cluster, and other appropriate instructional arrangements.	Develop plans to configure software/computer/technology systems and related peripherals in laboratory, classroom cluster, and other appropriate instructional arrangements.
	Use local mass storage devices and media to store and retrieve information and resources.	<ol><li>Install local mass storage devices and media to store and retrieve information and resources.</li></ol>
	<ol> <li>Discuss issues related to selecting, installing, and maintaining wide area networks (WAN) for school districts.</li> </ol>	<ol><li>Prioritize issues related to selecting, installing, and maintaining wide area networks (WAN) for school districts, and facilitate integration of technology infrastructure with the WAN.</li></ol>
	4. Model integration of software used in classroom and administrative settings including productivity tools, information access/telecommunication tools, multimedia/hypermedia tools, school management tools, evaluation/portfolio tools, and computer-based instruction.	<ol> <li>Manage software used in classroom and administrative settings including productivity tools, information access/telecommunication tools, multimedia/hypermedia tools, school management tools, evaluation/portfolio tools, and computer-based instruction.</li> </ol>
	<ol><li>Utilize methods of installation, maintenance, inventory, and management of software libraries.</li></ol>	<ol><li>Evaluate methods of installation, maintenance, inventory, and management of software libraries.</li></ol>
	<ol> <li>Use and apply strategies for troubleshooting and maintaining various hardware/software configurations found in school settings.</li> </ol>	<ol> <li>Develop and disseminate strategies for troubleshooting and maintaining various hardware/software configurations found in school settings.</li> </ol>

NETS Foundations Prerequisite Preparation	Educational Computing and Technology Facilitation (TF)	Educational Computing and Technology Leadership (TL)
	Utilize network software packages used to operate a computer network system.	<ol> <li>Select network software packages used to operate a computer network system and/or local area network (LAN).</li> </ol>
	Work with technology support personnel to maximize the use of technology resources by administrators, teachers, and students to improve student learning.	Analyze needs for technology support personnel to manage school/district technology resources and maximize use by administrators, teachers, and students to improve student learning.
	B. Follow procedures and guidelines used in planning and purchasing technology resources.	B. Follow procedures and guidelines used in planning and purchasing technology resources.
	Identify instructional software to support and enhance the school curriculum and develop recommendations for purchase.	Investigate purchasing strategies and procedures for acquiring administrative and instructional software for educational settings.
	<ol> <li>Discuss and apply guidelines for budget planning and management procedures related to educational computing and technology facilities and resources.</li> </ol>	<ol> <li>Develop and utilize guidelines for budget planning and management procedures related to educational computing and technology facilities and resources.</li> </ol>
	Discuss and apply procedures related to troubleshooting and preventive maintenance on technology infrastructure.	Develop and disseminate a system for analyzing and implementing procedures related to troubleshooting and preventive maintenance on technology infrastructure.
	<ol> <li>Apply current information involving facilities planning issues and computer related technologies.</li> </ol>	<ol> <li>Maintain and disseminate current information involving facilities planning issues and computer related technologies.</li> </ol>
	<ol> <li>Suggest policies and procedures concerning staging, scheduling, and security for managing computers/technology in a variety of school/laboratory/classroom settings.</li> </ol>	<ol> <li>Design and develop policies and procedures concerning staging, scheduling, and security for managing hardware, software, and related technologies in a variety of instructional and administrative school settings.</li> </ol>
	Use distance and online learning facilities.	<ol> <li>Research and recommend systems and processes for implementation of distance and online learning facilities and infrastructure.</li> </ol>
	<ol> <li>Describe and identify recommended specifications for purchasing technology systems in school settings.</li> </ol>	Differentiate among specifications for purchasing technology systems in school settings.
	<ul> <li>C. Participate in professional development opportunities related to management of school facilities, technology resources, and purchases.</li> </ul>	C. Participate in professional development opportunities related to management of school facilities, technology resources, and purchases.
	Support technology professional development at the building/school level utilizing adult learning theory.	Implement technology professional development at the school/district level utilizing adult learning theory.
	TF-VIII. Leadership and Vision. Educational technology facilitators will contribute to the shared vision for campus integration	TL-VIII. Leadership and Vision. Educational technology leaders will facilitate development of a shared vision for comprehensive integration of
	of technology and foster an environment and culture conducive to the realization of the vision. Educational technology facilitators:	technology and foster an environment and culture conducive to the realization of the vision. Educational technology leaders:
	A. Utilize school technology facilities and resources to implement classroom instruction.	A. Identify and apply educational and technology related research, the psychology of learning, and instructional design principles in guiding the use of computers and technology in education.
	Discuss and evaluate current research in educational technology.	Communicate and apply principles and practices of educational research in educational technology.
	B. Apply strategies for and knowledge of issues related to managing the change process in schools.	B. Apply strategies for and knowledge of issues related to managing the change process in schools.
	Discuss the history of technology use in schools.	Describe social and historical foundations of education and how they relate to the use of technology in schools.
	C. Apply effective group process skills.	C. Apply effective group process skills.
	Discuss the rationale for forming school partnerships to support technology integration and examine an existing partnership within a school setting.	Discuss issues relating to building collaborations, alliances, and partnerships involving educational technology initiatives.
	D. Lead in the development and evaluation of district technology planning and implementation.	D. Lead in the development and evaluation of district technology planning and implementation.
	Participate in cooperative group processes and identify the processes that were effective.	<ol> <li>Design and lead in the implementation of an effective group process related to technology leadership or planning.</li> </ol>

NETS Foundations Prerequisite Preparation	Educational Computing and Technology Facilitation (TF)	Educational Computing and Technology Leadership (TL)
	Conduct an evaluation of a school technology environment.	<ol><li>Use evaluation findings to recommend modifications in technology implementations.</li></ol>
	<ol><li>Identify and discuss national, state, and local standards for integrating technology in the school environment.</li></ol>	<ol><li>Use national, state, and local standards to develop curriculum plans for integrating technology in the school environment.</li></ol>
	Describe curriculum activities or performances that meet national, state, and local technology standards.	<ol> <li>Develop curriculum activities or performances that meet national, state, and local technology standards.</li> </ol>
	Discuss issues related to developing a school technology plan.	<ol><li>Compare and evaluate district-level technology plans.</li></ol>
	Discuss the elements of and strategies for developing a technology strategic plan.	<ol> <li>Use strategic planning principles to lead and assist in the acquisition, implementation, and maintenance of technology resources.</li> </ol>
	Examine issues related to hardware and software acquisition and management.	<ol> <li>Plan, develop, and implement strategies and procedures for resource acquisition and management of technology-based systems including hardware and software.</li> </ol>
	E. Engage in supervised field-based experiences with accomplished technology facilitators and/or directors.	E. Engage in supervised field-based experiences with accomplished technology facilitators and/or directors.
	Examine components needed for effective field-based experiences in instructional program development, professional development, facility and	<ol> <li>Participate in a significant field-based activity involving experiences in instructional program development, professional development, facility and resource management, WAN/LAN/wireless systems, or</li> </ol>
	resource management, WAN/LAN/wireless systems, or managing change related to technology use in school-based settings.	managing change related to technology use in school-based settings.

### APPENDIX I. B: NETS-T & INTASC Standards Correlation

### **INTASC\* Principles**

\*Interstate New Teacher Assessment and Support Consortium

Each principle is further discussed in terms of the knowledge, dispositions, and performances it implies. These provide the basis for evaluating evidence about a candidates' achievement of the standards, thus providing guidance for both preparation and assessment.

Principle #1:

**Knowledge of Subject Matter** 

The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and can create learning experiences that make these aspects of subject matter meaningful for students.

Principle #2:

Knowledge of Human Development & Learning

The teacher understands how children learn and develop and can provide learning opportunities that support their intellectual, social, and personal development.

Principle #3:

Adapting Instruction for Individual Needs

The teacher understands how students differ in their approaches to learning and creates instructional opportunities that are adapted to diverse learners.

Principle #4:

**Multiple Instructional Strategies** 

The teacher understands and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills.

Principle #5:

Classroom Motivation and Management

The teacher uses an understanding of individual and group motivation and behavior to create a learning environment that encourages positive social interaction, active engagement in learning, and self-motivation.

Principle #6:

Communication Skills

The teacher uses knowledge of effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom.

Principle #7:

Instructional Planning Skills

The teacher plans instruction based upon knowledge of subject matter, students, the community, and curriculum goals.

Principle #8:

**Assessment of Student Learning** 

The teacher understands and uses formal and informal assessment strategies to evaluate and ensure the continuous intellectual, social, and physical development of the learner.

Principle #9:

Professional Commitment and Responsibility

The teacher is a reflective practitioner who continually evaluates the effects of his/her choices and actions on others (students, parents, and other professionals in the learning community) and who actively seeks out opportunities to grow professionally.

Principle #10:

**Partnerships** 

The teacher fosters relationships with school colleagues, parents, and agencies in the larger community to support students' learning and well-being.

\*Interstate New Teacher Assessment and Support consortium (INTASC) is a consortium of more than thirty states operating under the Council of Chief State School Officers (CCSSO) that has developed standards and an assessment process for initial teacher certification. (Campbell, Melenyzer, Nettles & Wyman, 2000)

In attempting to correlate the overlap of the two sets of standards, it should be emphasized that achieving the ISTE NETS-Teacher Standards should help students achieve the appropriate INTASC Standard, while the reverse may not be true, since technology is not mentioned in the INTASC Standards. An overview of the draft correlation is shown below, followed by the specific ISTE Performance Indicators.

#### Overview

INTASC Standard Addressed→	1	2	3	4	5	6	7	8	9	10
ISTE NETS-Teacher Standards										
I. Technology Operations and Concepts. Teachers demonstrate a sound understanding of	X1								Χ	
technology operation and concepts.										
II. Planning and Designing Learning Environments and Experiences. Teachers plan and			Χ	Х	Х		Х			
design effective learning environments and experiences supported by technology.										
III. Teaching, Learning, and the Curriculum. Teachers implement curriculum plans, that	Х	Х	Χ	Х	Х		Х			
include methods and strategies that apply technology to maximize student learning.										
IV. Assessment and Evaluation. Teachers apply technology to facilitate a variety of	Х							Х		
effective assessment and evaluation strategies.										
V. Productivity and Professional Practice. Teachers use technology to enhance their						Х			Х	
productivity and professional practice.										
VI. Social, Ethical, Legal, and Human Issues. Teachers understand the social, ethical,			Χ						Х	
legal, and human issues surrounding the use of technology in PreK-12 schools and apply										
those principles in practice.										

### **Detailed View**

ISTE NETS-T Standards & Performance Indicators	INTASC Standards Addressed
I. Technology Operations and Concepts. Teachers demonstrate a sound understanding of technology operations and concepts. Teachers:	1 (see note), 9
A. demonstrate introductory technology literacy knowledge, skills, and concepts (described in the ISTE NETS Technology Foundation Standards for Students).	1 (see note)
B. demonstrate sustained growth in technology knowledge and skills to stay abreast of contemporary and emerging technologies.	9
II. Planning and Designing Learning Environments and Experiences. Teachers plan and design effective learning environments and experiences supported by technology. Teachers:	3, 4, 5, 7
A. design developmentally appropriate learning opportunities that apply technology-enhanced instructional strategies to support the diverse needs of learners.	3, 4, 7
B. apply current research on teaching and learning with technology when planning learning environments and experiences.	
C. identify and locate technology resources and evaluate them for accuracy and suitability.	
D. plan for the management of technology resources within the context of learning activities.	
E. plan strategies to manage student learning in a technology-enhanced environment.	5
III. Teaching, Learning, and the Curriculum. Teachers implement curriculum plans, that include methods and strategies that apply technology to maximize student learning. Teachers:	1, 3, 4, 5, 7
A. facilitate technology-enhanced experiences that address content standards and student technology standards.	1, 7
B. use technology to support learner-centered strategies that address the diverse needs of learners.	2, 3
C. apply technology to develop students' higher order skills and creativity.	4
D. manage student learning activities in a technology-enhanced environment.	5
IV. Assessment and Evaluation. Teachers apply technology to facilitate a variety of effective assessment and evaluation strategies. Teachers:	1, 8
A. apply technology in assessing student learning of subject matter knowledge and skills using a variety of assessment techniques.	1, 8
B. use technology resources to collect and analyze data, interpret results, and communicate findings to improve instructional practice and maximize student learning.	8
C. apply multiple methods of evaluation to determine students' appropriate use of technology resources for learning, communication, and productivity.	8
V. Productivity and Professional Practice. Teachers use technology to enhance their productivity and professional practice. Teachers:	6, 9
A. use technology resources to engage in on-going professional development and lifelong learning.	9
B. continually evaluate and reflect on professional practice to make informed decisions regarding the use of technology in support of student learning.	9
C. apply technology to increase productivity.	9
D. use technology to communicate and collaborate with peers, parents, and the larger community to nurture student learning.	6
VI. Social, Ethical, Legal, and Human Issues. Teachers understand the social, ethical, legal, and human issues surrounding the use of technology in PreK-12 schools and apply those principles in practice. Teachers:	3, 9
A. model and teach legal and ethical practice related to technology use.	9
B. apply technology resources to enable and empower learners with diverse backgrounds, characteristics, and abilities.	3
C. identify and use technology resources that affirm diversity.	3
D. promote safe and healthy use of technology resources.	9
E. facilitate equitable access to technology resources for all students.	1

<sup>&</sup>lt;sup>1</sup> NOTE: If Technology is considered a subject matter that teachers need to understand and make meaningful for students. p. 70

These tables are an attempt to correlate the ISTE NETS for Teachers Standards and the INTASC Standards.

All comments, contributions and suggestions would be appreciated.

### Appendix II. SUMMARY OF MAJOR ASSESSMENT EXPERIENCES BY STANDARD

- A. Prerequisite Standards Assessment Experiences Summary
- B. Technology Facilitation Standards Assessment Experiences Summary
- C. Technology Leadership Standards Assessment Experiences Summary

## INTERNATIONAL SOCIETY FOR TECHNOLOGY IN EDUCATION (ISTE) SUMMARY OF MAJOR ASSESSMENT EXPERIENCES BY STANDARD

## PREREQUISITE STANDARDS FOR ADMISSION TO TECHNOLOGY FACILITATION PROGRAM (BASED ON ISTE NETS FOR TEACHERS)

**Prerequisite Standards Assessment Experiences Summary** 

NETO for Total and																							
NETS for Teachers	ISTE	NET	S to	r Te	ache	rs:	Stan	dard	S														
Performance Assessment	Operat	tions	PI	annin	g & D	esigni	ng			, Learr		Ass	sessm	ent	Pr	oduct	ivity a	ınd	Soc	ial, Et	hical,	Legal	and
Artifacts* and Evidence for	an	d	Le	arning				and	the C	urricu	lum		and		ı	Profes		ıl		Hun	nan Is	sues	
	Conce	epts		and E	xperi								aluati			Prac	ctice				,		
Benchmark I. Admissions	ı	I	l II	II	II	II	II	III	III	III	III	IV	IV	IV	V	V	V	V	VI	VI	VI	VI	VI
	Α	В	Α	В	С	D	E	Α	В	С	D	Α	В	С	Α	В	С	D	Α	В	С	D	E
A. General Admissions Criteria:																							
(e.g., GRE scores, written exam, GPA,																							
Interview)																							
B. Technology Performances: Portfolio of																							
Performance Assessment Artifacts*:																							
Classroom Technology Applications Plan		*		*	*	*	*								*	*		*					
Sample File:		^		^	^	^	^								^	_ ^		^					
Technology in an instructional unit and			*	*	*	*	*	*	*	*	*	*	*	*									
components of a unit			^	^	^	^	^	^	^	^	^	^	^	^									
Sample File:																							
Technology in Communications													.1.					.1.					
Sample File:													*					*					
														_			_						
Technology for Record Keeping													*	*			*						
Sample File:																							
Professional development in applying		*													*	*		*	*	*			
technology to teaching and learning:																							
Sample File:																							
<ol><li>Technology in education vision statement or</li></ol>																			*	*	*	*	*
platform																							
Sample File:																							

<sup>\*</sup>This is a sample set of performances for an admission performance assessment/portfolio. The specific artifacts and assessment tools are determined by each university program. Artifacts are assessed and data serve as evidence of meeting standards marked with asterisks. Each standard is addressed through multiple activities and assessments.

The asterisks indicate which standards are addressed in each major experience/activity and related artifact. It is essential that multiple measures relating to each of the six standards and indicators are generated as evidence of performance proficiency.

## SUMMARY OF STANDARDS AND PERFORMANCE ASSESSMENT EXPERIENCES FOR TECHNOLOGY FACILITATION ENDORSEMENT PROGRAMS

**Technology Facilitation Standards Assessment Experiences Summary** 

recimolog	,			. 50		Bench											tion	/TE	1 =	ndo	rse	mer	nt P	rog	ram	s _							
ISTE Technology Facilitation Portfolio Required entries:	-	eratio ns ncepts			, & Des	signing l	Learni	ng		eaching		rning a		As	sessn and valuat	nent	Pro	oducti Profes Prac	vity a	ınd	Sc	cial, l	Ethica	ıl, Leç	gal	Pro FI PI Buo Te	ocedur Policies anning Igeting chnolo	& for gy			adersh nd Visio		
	I A	I B	II A	II B	II	II D	II E	II F	III A	III	III	III D	III	IV A	IV B	IV C	V	V B	V	V	VI A	VI B	VI C	VI D	VI E	VII A	rironme VII B	vII C	VIII	VIII B	VIII	VIII	VIII
Benchmark II. Technology Facilitation Experiences					<u> </u>		_									•																	
Technology     Resource data     base for a     school     File:	*	*		*		*						*	*		*	*		*		*						*	*	*					
2. Technology Professional Development Needs Assessment File:	*		*	*	*	*					*					*																	
3. Plan on On-line Mentoring and Peer Collaboration File:															*					*								*		*		*	
Workshop for     Technology-     based Record     Keeping     File:											*			*		*			*									*					
5. Plan for year- long Professional Development Program for preparing teachers in a school to apply technology in their teaching File:	*	*										*	*		*		*	*		*	*	*				*	*	*	*	*	*		*

Benchmark III. Technology Facilitation Field Experiences																					
6. Workshops on Social, Ethical, Legal, and Human Issues related to Technology (delivered and supervised in the field) File:	*	*	*			*					*	*	*	*	*		*	*	*	*	*
Self Selected Entry File:																					
Self Selected Entry File:			·								·		•						·		

This is a sample of a possible way to organize the major events that generate evidence through evaluation of artifacts that are organized in either an electronic portfolio or a paper one.

# SUMMARY OF STANDARDS AND PERFORMANCE ASSESSMENT EXPERIENCES FOR TECHNOLOGY LEADERSHIP ADVANCED PROGRAMS

**Technology Leadership Standards Assessment Experiences Summary** 

rechnology Leader	SIIIP	Sla	mu	aru	15 P	155	625	SIIIC				chn					hin	Sta	and:	ards														
ISTE Technology									IC	Ш	IG	21111	OIO	JY L	Gau	GIS	ШУ	Ote	anter	alus	,													
Leadership Portfolio Required Entries:	Opera Cond		L	.earni	ing & ng En d Exp	nviron	ment	s	Teac	hing, Cι	Learni Irriculi	ing and	I the		sessm Evalua			Profes	tivity a ssiona ctice		Soc		hical, I nan Iss		and	PI Bud Te	Pol Plan Budge Tech Inviro	edure licies, ining eting inolog onme	& for gy nts		а	eadersh nd Visio	on On	
	I A	I B	II A	II B	II	II D	II E	II F	III A	III B	C	III D	III	IV A	IV B	IV C	V A	V B	V	V D	VI A	VI B	VI C	VI D	VI E	VII A	1	VII B	VII	VIII A	VIII B	VIII	VIII	VIII
Benchmark I. Admissions 1) General Admission Criteria 2) Prerequisite Standards 3) Tech Facilitation Standards																																		
Benchmark II. Technology Leadership Experiences																																		
1. File	*	*		*		*					*				*		*	*		*						*	•	*	*					
2. File:			*	*	*	*	*	*	*	*						*														*	*			
3.									*			*			*					*			*	*	*				*				*	*
4. File:	*								*	*				*		*			*										*			*		
5. File:		*									*		*		*		*	*		*	*	*				*		*	*	*	*			
Benchmark III. Technology Leadership Field Experiences																																		
6. File:																					*	*	*	*	*					*	*	*	*	*
Self Selected Entry File:																																		
Self Selected Entry File:																																		

This is a sample of a possible way to organize the major events that generate evidence through evaluation of artifacts that are organized in either an electronic portfolio or a paper one. The Required Entries are determined by the faculty, who then determine if all of the standards have been addressed, assessed by multiple measures, and if any areas need reinforcement. It provides the major activities within the programs and visually depicts what standards are addressed and how many times they are reinforced in the program. The results of the aggregation of data from the assessment of the artifacts should feed into the overall assessment system.