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# **ILLINOIS LICENSURE TESTING SYSTEM**

**FIELD 223: TECHNOLOGY SPECIALIST**

**TEST FRAMEWORK**

**May 2018**

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# ILLINOIS LICENSURE TESTING SYSTEM

## FIELD 223: TECHNOLOGY SPECIALIST

### TEST FRAMEWORK

May 2018

<b>Subarea</b>	<b>Range of Objectives</b>
I. Foundations of Technology in Education	0001–0003
II. Instructional Technology Infrastructure	0004–0005
III. Integration of Technology into Instruction	0006–0008
IV. Management, Planning, and Professional Development	0009–0012

# ILLINOIS LICENSURE TESTING SYSTEM

## FIELD 223: TECHNOLOGY SPECIALIST

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Foundations of Technology in Education  
Instructional Technology Infrastructure  
Integration of Technology into Instruction  
Management, Planning, and Professional Development

#### SUBAREA I—FOUNDATIONS OF TECHNOLOGY IN EDUCATION

##### **0001 Understand concepts and skills relevant to digital-age learning environments, tools, and resources that maximize the learning of all students.**

For example:

- Demonstrate knowledge of how to evaluate, maintain, and manage a variety of digital tools and resources for teacher and student use in technology-rich learning environments that are compatible with the school technology infrastructure.
- Demonstrate knowledge of how online and blended learning, digital content, and collaborative learning networks support and extend student learning.
- Demonstrate knowledge of concepts and skills (e.g., ease of use, accessibility, age-appropriateness, Web-based interoperability) related to learning technologies, information access, and delivery tools in classroom, lab, and administrative settings.
- Demonstrate knowledge of concepts and skills related to using classroom and administrative productivity tools.
- Demonstrate knowledge of how to research, evaluate, and develop recommendations for purchasing instructional software and learning technology systems to support and enhance the school curriculum.
- Demonstrate knowledge of how to use information access and telecommunication tools to support research and instruction throughout the curriculum.
- Demonstrate knowledge of how to promote diversity, cultural understanding, and global awareness by using digital communication and collaboration tools to interact locally and globally with students, parents/guardians, peers, and the larger community.

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**0002 Understand social, ethical, legal, and security issues related to the use of technology in education.**

For example:

- Analyze social, ethical, and legal issues surrounding the responsible use of technology.
- Demonstrate knowledge of methods for promoting the ethical and legal use of technology.
- Demonstrate familiarity with issues and research related to equity concerning the use of computers and other learning technologies.
- Demonstrate knowledge of principles for maintaining users' privacy, security, and safety when using computers and other learning technologies.
- Apply knowledge of the use of adaptive and assistive technologies to support student learning and recognize resources to assist in their procurement and implementation.

**0003 Understand educational and technology-related research, the psychology of learning, and instructional design principles that guide use of computers and technology in education.**

For example:

- Demonstrate knowledge of principles and practices of educational research in educational technology.
- Demonstrate knowledge of major research findings and trends that relate to the integration of technology in an elementary and/or secondary environment.
- Demonstrate knowledge of theories of learning, teaching, and instructional design and their relationship to the use of technology to support learning.
- Recognize how the social and historical foundations of education, including educational reform efforts, relate to the use of technology in schools.

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**SUBAREA II—INSTRUCTIONAL TECHNOLOGY INFRASTRUCTURE**

**0004 Understand how to install, manage, and maintain the infrastructure of educational technology.**

For example:

- Demonstrate knowledge of configuring computer/technology systems and related peripherals in laboratory, classroom cluster, and other appropriate instructional arrangements.
- Demonstrate knowledge of the development of school policies, procedures, and practices related to the use of computers and other learning technologies.
- Analyze procedures for the organization, management, and security of hardware, software, and data systems.
- Demonstrate knowledge of how to maintain various hardware/software configurations and troubleshoot basic software, hardware, and connectivity problems common in digital learning environments.
- Identify characteristics of the major operating systems associated with computing platforms commonly found in schools and ways to manipulate preferences, defaults, and other selectable features of these operating systems.

**0005 Understand types, uses, and selection of technologies in both classroom and administrative environments.**

For example:

- Identify characteristics of software used in classroom and administrative settings, including productivity tools, information access tools, digital media tools, school management tools, evaluation/portfolio tools, and instructional tools.
- Demonstrate knowledge of evaluation criteria for software and identify reliable sources of software evaluations.
- Demonstrate knowledge of methods of installation, inventory, and management of software libraries and ethical and legal procedures for maintaining them.
- Demonstrate knowledge of how to manage and use storage devices or systems to store and retrieve information and resources.
- Demonstrate knowledge of network software packages, the operation of a local area network (LAN), and maintaining wide area networks (WANs) for school districts.
- Demonstrate knowledge of the use of cloud computing for instruction and administration.

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### SUBAREA III—INTEGRATION OF TECHNOLOGY INTO INSTRUCTION

#### **0006 Understand concepts and skills related to implementing, promoting, and supporting technology literacy across the curriculum.**

For example:

- Demonstrate knowledge of issues and strategies related to the implementation and revision of digital literacy curriculum to reflect ongoing changes in technology.
- Demonstrate knowledge of the instructional uses of media and online tools.
- Demonstrate knowledge of student guidance resources, career awareness resources, and student support activities related to computing and technology as a career option for students.
- Recognize considerations and practices related to using learning technologies to address the diverse needs and interests of all students.
- Demonstrate knowledge of classroom management strategies that maximize teacher and student use of digital tools, resources, and access to technology-rich learning environments.
- Demonstrate knowledge of the design and implementation of integrated technology classroom activities that encourage collaboration, communication, creativity, and critical thinking.

#### **0007 Understand concepts and skills related to instructional design and product development.**

For example:

- Demonstrate knowledge related to the use of authoring tools\* and evaluate their appropriateness for classroom applications.
- Demonstrate knowledge of instructional design principles and strategies to develop digital instructional products that are substantive and interactive.
- Demonstrate knowledge of how to test and evaluate instructional products once they have been created.

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#### **\*authoring tools**

software that allows the user to easily create computer-enhanced products of all types, including multimedia, interactive, and Web-based teaching aids

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**0008 Understand how to coach teachers in using technology effectively for assessing student learning, differentiating instruction, and providing rigorous, relevant, and engaging learning experiences for all students.**

For example:

- Demonstrate understanding of how to coach teachers in and model design and implementation of technology-enhanced learning experiences addressing content standards and student technology standards.
- Demonstrate knowledge of how to coach teachers in and model design and implementation of technology-enhanced learning experiences using a variety of research-based, learner-centered instructional strategies and assessment tools to address the diverse needs and interests of all students.
- Demonstrate knowledge of how to coach teachers in and model engagement of students in local and global interdisciplinary units in which technology helps students assume professional roles, research real-world problems, collaborate with others, and produce products that are meaningful and useful to a wide audience.
- Demonstrate knowledge of how to coach teachers in and model design and implementation of technology-enhanced learning experiences emphasizing creativity, higher-order thinking skills and processes, and habits of mind (e.g., critical thinking, metacognition, self-regulation).
- Demonstrate knowledge of how to coach teachers in and model design and implementation of technology-enhanced learning experiences using differentiation, including adjusting content, process, product, and learning environment based upon student readiness levels, learning styles, interests, and personal goals.
- Demonstrate knowledge of how to coach teachers in and model incorporation of research-based best practices in instructional design when planning technology-enhanced learning experiences.
- Demonstrate knowledge of how to coach teachers in and model effective use of technology tools and resources to continually assess student learning and technology literacy by applying formative and summative assessments aligned with content and student technology standards.
- Demonstrate knowledge of how to coach teachers in and model effective use of technology tools and resources to systematically collect and analyze student achievement data, interpret results, and communicate findings to improve instructional practice and maximize student learning.

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### SUBAREA IV—MANAGEMENT, PLANNING, AND PROFESSIONAL DEVELOPMENT

#### **0009 Understand how to contribute to the development, communication, and implementation of a shared vision for the comprehensive integration of technology to support a digital-age education for all students.**

For example:

- Apply knowledge of how to contribute to the planning, development, communication, implementation, evaluation, and modification of technology-infused strategic plans and procedures for resource acquisition at the district and school levels.
- Demonstrate knowledge of how to advocate for technology policies, procedures, and programs to support implementation of a shared vision.
- Demonstrate knowledge of how to implement strategies for initiating and sustaining technology innovations and manage the change process in schools and classrooms.
- Identify resources, including funding and infrastructure, available at the local, state, and/or national level; and demonstrate knowledge of effective methods for developing grant proposals.
- Demonstrate knowledge of effective group-processing skills and issues related to building collaborations, alliances, and partnerships involving educational technology initiatives.
- Demonstrate knowledge of educational reform efforts and building-level changes and professional development strategies (e.g., block scheduling, cross-subject units of instruction) that facilitate the integration of technology into all content areas.

#### **0010 Understand issues related to facilities and resource management.**

For example:

- Demonstrate knowledge of budget planning and management procedures related to technology facilities and resources (e.g., Illinois infrastructure to support educational technology).
- Demonstrate knowledge of procedures for procurement and preventive maintenance of systemwide technological services.
- Demonstrate knowledge of methods for developing policies and procedures concerning staffing, scheduling, and security for managing computers and technology in a variety of instructional and administrative school settings.
- Identify purchasing strategies and procedures for acquiring administrative and instructional technologies for educational settings.



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**0011 Understand staff development activities to support professional growth in learning technologies.**

For example:

- Demonstrate knowledge of how to conduct needs assessments to inform the content and delivery of technology-related professional learning programs designed to have a positive impact on student learning.
- Demonstrate knowledge of how to design, develop, and implement technology-rich professional learning programs that model principles of adult learning and promote digital-age best practices in teaching, learning, and assessment.
- Demonstrate knowledge of how to evaluate results of professional learning programs to determine their effectiveness on deepening teacher content knowledge, improving teacher pedagogical skills, and increasing student learning.
- Demonstrate knowledge of how to design and customize staff development programs that support professional growth in learning technologies for different audiences, including school and district decision makers and the larger school community.
- Demonstrate knowledge of online and blended learning, digital content, and collaborative learning networks, including professional organizations, groups, and resources, and how they can be used to expand opportunities and choices for online professional development for teachers and administrators.

**0012 Understand how to deepen professional knowledge, skills, and dispositions in content, pedagogical, and technological areas as well as adult learning and leadership.**

For example:

- Demonstrate understanding of how to engage in continual learning to deepen content and pedagogical knowledge in technology integration and current and emerging technologies necessary to effectively implement national and state student and teacher standards.
- Demonstrate knowledge of how to engage in continuous learning to deepen professional knowledge, skills, and dispositions in organizational change and leadership, project management, and adult learning to improve professional practice.
- Apply principles for evaluating and reflecting on professional practice and dispositions to improve and strengthen the ability to effectively model and facilitate technology-enhanced learning experiences.