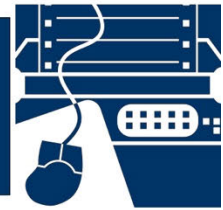


TECHNICAL COMPUTER APPLICATIONS



SkillsUSA Championships Technical Standards

PURPOSE

To evaluate each competitor's preparation for employment and to recognize outstanding students for excellence and professionalism in the field of technical computer applications.

First, download and review the General Regulations at: <http://updates.skillsusa.org>.

ELIGIBILITY

Open to active SkillsUSA members enrolled in programs with computer literacy as an occupational objective. Each state may send one high school and one college/postsecondary entry.

CLOTHING REQUIREMENTS

Class E: Competition Specific — Business Casual

- Official SkillsUSA white polo shirt
- Black dress slacks or black dress skirt (knee-length minimum)
- Black closed-toe dress shoes

Note: Wearing socks or hose is no longer required. If worn, socks must be black dress socks and hose must be either black or skin-tone and seamless/nonpattern.

These regulations refer to clothing items that are pictured and described at www.skillsusastore.org. If you have questions about clothing or other logo items, call 1-888-501-2183.

Note: Competitors must wear their official competition clothing to the competition orientation meeting.

EQUIPMENT AND MATERIALS

1. Supplied by technical committee:
 - a. Power strip
 - b. Network storage and networking equipment to connect to an Ethernet network
2. Supplied by the competitor:
 - a. A valid photo ID is required for the national competition for the Certiport IC3 exam.
 - b. State competitions may require the competitor to provide their own computer.
 - c. All competitors must create a one-page resume. See “Resume Requirement” below for guidelines.

Note: Any changes to the equipment and materials requirements will be announced annually in the SkillsUSA Championships update at: <http://updates.skillsusa.org>.

Note: No phones or tablets will be allowed during the competition.

RESUME REQUIREMENT

Competitors must create a one-page resume to submit online. SkillsUSA national competitors should submit their resume by June 1. The link for resume submission will be published on <http://updates.skillsusa.org> on May 1. Failure to submit a resume will result in a 10-point penalty.

Your resume must be saved as a PDF file type using file name format of “Last Name_First Name.” For example, “Amanda Smith” would save her resume as **Smith_Amanda**. If you need assistance with saving your file as a PDF, visit [the Adobe website](http://www.adobe.com) for more information.

Note: Check the Competition Guidelines and/or the updates page on the SkillsUSA website at <http://updates.skillsusa.org>.

PROHIBITED DEVICES

Cell phones or other electronic devices not approved by a competition’s national technical committee are **NOT** allowed in the competition area. Please follow the guidelines in each technical standard for approved exceptions. Technical committee members may also approve exceptions onsite during the SkillsUSA Championships if deemed appropriate.

Penalties for Prohibited Devices

If a competitor’s electronic device makes noise or if the competitor is seen using it at any time during the competition, an official report will be documented for review by the SkillsUSA Championships director. If confirmed that the competitor used the device in a manner which compromised the integrity of the competition, the competitor’s scores may be canceled.

SCOPE OF THE COMPETITION

This competition is defined by industry standards and assesses the ability of a competitor to perform jobs and skills selected from the list of competencies as determined by the SkillsUSA Championships technical committee.

KNOWLEDGE PERFORMANCE

This portion of the competition will be a computer-based knowledge exam. Competencies evaluated on the written exam are in-line with the latest version of the IC3 exams. Competitors are also required to take the SkillsUSA professional development test.

SKILL PERFORMANCE

A series of demonstrations will be completed during the skill performance portion of the competition. The competencies outlined by the technical committee will be used as the foundation for this assessment. Competitors should be familiar with using a Windows, Linux and/or macOS-based operating system. All work must be done independently.

STANDARDS AND COMPETENCIES

TECH 1.0 — Administer topics relating to the Internet standards and guidelines as set forth by the technical committee

- 1.1. Describe email functions
- 1.2. Demonstrate knowledge of cloud computing
- 1.3. Explain networking processes
- 1.4. Display knowledge of server installation
- 1.5. Describe wireless and Bluetooth technology

TECH 2.0 — Install and configure an operating system per standards and guidelines as set forth by the technical committee

- 2.1. Modify the configuration setting for an operating system
- 2.2. Create users and policies for users
- 2.3. Manipulate application software as needed
- 2.4. Demonstrate technical troubleshooting ability
- 2.5. Display an ability to work in a team environment to develop solutions to common business problems

TECH 3.0 — Demonstrate the use of application software per standards and guidelines as set forth by the technical committee

- 3.1. Use features in data management
 - 3.1.1. Importing and exporting data
 - 3.1.2. Knowledge of SQL and DML (Data Manipulation Language)
 - 3.1.3. Web & data source scraping, including data from APIs
 - 3.1.4. Creating and editing reports
 - 3.1.5. Normalizing and denormalizing
 - 3.1.6. Developing and maintaining data schemas

- 3.1.7. Data security best practices
- 3.1.8. Analyzing data for common business purposes
- 3.2. Use features in word processing
 - 3.2.1. Format text and paragraphs
 - 3.2.2. Apply and format columns
 - 3.2.3. Insert and modify content in headers and footers
 - 3.2.4. Modify document layout and page setup
 - 3.2.5. Create new documents using a template
 - 3.2.6. Review and modify document properties
 - 3.2.7. Organize documents using file folders
 - 3.2.8. Save documents in appropriate formats for different users
 - 3.2.9. Print documents, envelopes and labels
 - 3.2.10. Preview documents and Web pages
 - 3.2.11. Insert and edit text, symbols and special characters
 - 3.2.12. Insert frequently used and pre-defined text
 - 3.2.13. Navigate to specific content
 - 3.2.14. Insert, position and size graphics
 - 3.2.15. Create and modify diagrams and charts
 - 3.2.16. Locate, select and insert supporting information
 - 3.2.17. Change and organize document views and windows
 - 3.2.18. Insert and modify tables
 - 3.2.19. Create bulleted lists, numbered lists and outlines
 - 3.2.20. Insert and modify hyperlinks
 - 3.2.21. Circulate documents for review
 - 3.2.22. Compare and merge documents
 - 3.2.23. Insert, view and edit comments
 - 3.2.24. Track, accept and reject proposed changes
- 3.3. Use features of spreadsheets
 - 3.3.1. Enter and edit cell content
 - 3.3.2. Locate specific cell content
 - 3.3.3. Locate, select and insert supporting information
 - 3.3.4. Insert, position and size graphics
 - 3.3.5. Filter lists using the AutoFilter feature
 - 3.3.6. Sort lists
 - 3.3.7. Insert and modify formulas
 - 3.3.8. Use statistical, date and time, financial and logical functions
 - 3.3.9. Create, modify and position diagrams and charts based on worksheet data
 - 3.3.10. Apply and modify cell formats
 - 3.3.11. Apply and modify cell styles
 - 3.3.12. Modify row and column formats
 - 3.3.13. Format worksheets
 - 3.3.14. Insert, view and edit comments
 - 3.3.15. Create new workbooks from templates
 - 3.3.16. Insert, delete and move cells
 - 3.3.17. Create and modify hyperlinks
 - 3.3.18. Organize worksheets

- 3.3.19. Preview data in other views
- 3.3.20. Customize window layout
- 3.3.21. Build and develop complex formulas involving multiple sheets and/or logic statements
- 3.3.22. Organize workbooks using file folders
- 3.3.23. Save data in appropriate formats for different uses
- 3.4. Use features in presentation software
 - 3.4.1. Create new presentations from templates
 - 3.4.2. Insert and edit text-based content
 - 3.4.3. Insert tables, charts and diagrams
 - 3.4.4. Insert pictures, shapes and graphics
 - 3.4.5. Insert objects
 - 3.4.6. Format text-based content
 - 3.4.7. Format pictures, shapes and graphics
 - 3.4.8. Format slides
 - 3.4.9. Apply animation schemes
 - 3.4.10. Apply slide transitions
 - 3.4.11. Customize slide templates
 - 3.4.12. Work with masters
 - 3.4.13. Track, accept and reject changes in a presentation
 - 3.4.14. Add, edit and delete comments in a presentation
 - 3.4.15. Compare and merge presentations
 - 3.4.16. Organize a presentation
 - 3.4.17. Set up slide shows for delivery
 - 3.4.18. Rehearse timing
 - 3.4.19. Deliver presentations
 - 3.4.20. Prepare presentations for remote delivery
 - 3.4.21. Save and publish presentations
 - 3.4.22. Print slides, outlines, handouts and speaker notes
 - 3.4.23. Export a presentation to another Microsoft Office program
- 3.5. Web page development tools
- 3.6. Web browser

TECH 4.0 — Complete a hands-on demonstration of basic programming & scripting per standards and guidelines as set forth by the technical committee

- 4.1. Exhibit knowledge of one or more scripting languages (JavaScript, Python, Ruby, PowerShell, etc.)
- 4.2. Demonstrate ability to outline logic flow of common business scenarios
- 4.3. Employ knowledge of networking data flow

TECH 5.0 — SkillsUSA Framework

The SkillsUSA Framework is used to pinpoint the Essential Elements found in Personal Skills, Workplace Skills, and Technical Skills Grounded in Academics. Students will be expected to display or explain how they used some of these Essential Elements. Please reference the graphic above, as you may be scored on specific elements applied to your project. For more, visit: www.skillsusa.org/about/skillsusa-framework/.



COMMITTEE IDENTIFIED ACADEMIC SKILLS

The technical committee has identified that the following academic skills are embedded in this competition.

Math Skills

- Use fractions to solve practical problems.
- Use proportions and ratios to solve practical problems.
- Solve practical problems involving percentages.
- Solve single variable algebraic expressions.
- Solve multiple variable algebraic expressions.
- Apply transformations (rotate or turn, reflect or flip, translate or slide and dilate or scale) to geometric figures.
- Make predictions using knowledge of probability.
- Make comparisons, predictions and inferences using graphs and charts.
- Organize and describe data using matrices.
- Solve problems using proportions, formulas and functions.
- Use laws of exponents to perform operations.

Science Skills

None Identified

Language Arts Skills

- Provide information in conversations and in group discussions.
- Provide information in oral presentations.
- Demonstrate use of such verbal communication skills as word choice, pitch, feeling, tone and voice.
- Demonstrate use of such nonverbal communication skills as eye contact, posture and gestures using interviewing techniques to gain information.
- Demonstrate comprehension of a variety of informational texts.
- Use text structures to aid comprehension.
- Organize and synthesize information for use in written and oral presentations.
- Demonstrate knowledge of appropriate reference materials.
- Use print, electronic databases and online resources to access information in books and articles.

CONNECTIONS TO NATIONAL STANDARDS

State-level academic curriculum specialists identified the following connections to national academic standards.

Math Standards

- Algebra
- Data analysis and probability
- Problem solving
- Communication
- Connections
- Representation

Source: NCTM Principles and Standards for School Mathematics. For more information, visit: www.nctm.org.

Science Standards

- Understands the sources and properties of energy
- Understands the nature of scientific inquiry
- Understands the scientific enterprise

Source: McREL compendium of national science standards. To view and search the compendium, visit: www2.mcrel.org/compendium/browse.asp.

Language Arts Standards

- Students apply a wide range of strategies to comprehend, interpret, evaluate and appreciate texts. They draw on their prior experience, their interactions with other readers and writers, their knowledge of word meaning and of other texts, their word identification strategies and their understanding of textual features (e.g., sound-letter correspondence, sentence structure, context, graphics).
- Students adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.
- Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.
- Students apply knowledge of language structure, language conventions (e.g., spelling and punctuation), media techniques, figurative language and genre to create, critique and discuss print and non-print texts.
- Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.
- Students use spoken, written and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion and the exchange of information).

Source: IRA/NCTE Standards for the English Language Arts. To view the standards, visit: www.ncte.org/standards.