

**Skilled and Technical Sciences Education**

**Endorsement Guidelines**

**To Accompany Rule 24**

***(Adopted by the State Board  
of Education on \_\_/\_\_/\_\_)***

**Proposed CLEAN Skilled and Tech Sci Field—9.30.16**

***(After Ad Hoc Meeting)***

***(OSHA-10 in Guidelines)***

006.33 Skilled and Technical Sciences Education

006.33A Grade Levels: 6-12

006.33B Endorsement Type: Field

006.33C Persons with this endorsement may teach Skilled and Technical Sciences Education and will be eligible for the Work-Based Learning endorsement.

006.33D Certification Endorsement Requirements: This endorsement requires a minimum of 48 semester hours of coursework in skilled and technical sciences education and professional education, including:

006.33D1 A minimum of six (6) semester hours of professional education coursework to include content area methods, assessment, and facility design and management; and

006.33D2 A minimum of six (6) semester hours in each of the following career fields: Architecture and Construction, Manufacturing, Energy and Engineering, and Transportation, Distribution and Logistics. The career field courses will include career information, first aid, and occupational and environmental safety, and

006.33D3 A minimum of three (3) semester hours in the pedagogical content knowledge and principles of career and technical education; and

006.33D4 A minimum of three (3) semester hours in the coordination and supervision of work-based learning, and

006.33E Work Experience: The endorsement is available only to those who have either (A) 1,000 verified hours of paid work experience relevant to the career field; or (B) at least 300 hours of supervised work experience relevant to the career field under the direction of the college or university recommending the endorsement.

006.33F Endorsement Program Requirements: Nebraska teacher education institutions offering this endorsement program must have on file, within the institution, a plan which identifies the courses and the course completion requirements which the institution utilizes to grant credit toward completion of this endorsement.

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**THE FOLLOWING ARE RECOMMENDED GUIDELINES FOR  
INCLUSION AS PART OF THE INSTITUTION'S PLAN  
UNDER THIS ENDORSEMENT.**

Through the courses identified in its plan, the institution must provide candidates for this endorsement with opportunities to demonstrate the dispositions and competencies required by the following guidelines:

**Pedagogical Content Knowledge**

**Standard 1.** Demonstrate professionalism with an emphasis in the following areas:

- Element 1. Professional growth, reflection, and evaluation;
  - 1a. Candidates are aware of and reflect on their practice in light of research on teaching and learning, professional ethics, and resources available for professional learning;
  - 1b. Candidates continually evaluate the effects of their professional decisions and actions on students, families, and other professionals in the learning community, and
  - 1c. Candidates actively seek out opportunities for ongoing professional development, especially by engagement in professional organizations, conferences, in-service workshops, and other professional opportunities; and
- Element 2. Collaboration with families, colleagues, and community.
  - 2a. Candidates engage in and reflect on a variety of experiences related to skilled and technical sciences that demonstrate understanding of and readiness for leadership, mentoring, collaboration, and community engagement and involvement.

**Standard 2.** Integrate the Nebraska Career Readiness Standards in all Skilled and Technical Sciences (STS) courses to include:

- Element 1. Apply appropriate academic and technical skills;
- Element 2. Communicate effectively and appropriately;
- Element 3. Contribute to employer and community success;
- Element 4. Make sense of problems and persevere in solving them;
- Element 5. Use critical thinking skills;
- Element 6. Demonstrate innovation and creativity;
- Element 7. Model ethical leadership and effective management;
- Element 8. Work productively in teams and demonstrate cultural competency;
- Element 9. Utilize technology;
- Element 10. Manage personal career development; and
- Element 11. Attend to personal and financial well-being.

**Content Knowledge**

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**Standard 3.** Demonstrate teaching and technical skills appropriate to successfully teach the study of skilled and technical sciences in the following specific career clusters:

Element 1. Architecture and Construction Knowledge and Skills in:  
1a. Design and Pre-Construction and  
1b. Construction;

Element 2. Energy and Engineering Knowledge and Skills in:  
2a. Energy,  
2b. Engineering, and  
2c. Robotics;

Element 3. Manufacturing Knowledge and Skills in:  
3a. Production,  
3b. Maintenance, Installation, and Repair and  
3c. Automation;

Element 4. Transportation, Distribution, and Logistics Knowledge and Skills in:  
4a. Facility and Mobile Equipment Maintenance and  
4b. Multi-modal Transportation.

**Standard 4.** Meet all requirements for and hold the Occupational Safety and Health Administration (OSHA) 10 card.

**Principles of Career and Technical Education**

**Standard 5.** Demonstrate knowledge of curriculum and program design: Deliver a standards-based curriculum in Skilled and Technical Sciences through programs of study that incorporate classroom and laboratory instruction; experiential, project and work-based learning, and leadership and personal development through SkillsUSA.

Element 1. Develop programs of study that reflect the needs of the community and have been developed according to state requirements.

Element 2. Design courses in the program of study that are organized logically and sequentially from introductory to advanced levels.

Element 3. Align technical content with core academic content standards.

**Standard 6.** Apply knowledge of facilities and equipment planning: Design facilities and equipment plans that support the implementation of the program and curriculum by providing all students opportunities for the development and application of knowledge and skills.

Element 1. Develop facility plans that provide for the effective delivery of all programs of study offered.

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- Element 2. Demonstrate knowledge of existing local, state, and federal safety and health standards.
- Element 3. Develop training and evaluation so students using the facility engage in a safe working environment.
- Element 4. Demonstrate the ability to maintain a clean and organized environment conducive to learning.
- Element 5. Demonstrate knowledge of facility design that is accessible and accommodating to all students.
- Element 6. Demonstrate the ability to organize storage space for both student and teacher materials, supplies, and equipment.
- Element 7. Demonstrate the ability to maintain an inventory of equipment, tools, consumable items, and instructional technology and is able to develop a plan for new purchases and replacements.
- Element 8. Maintain and use equipment, tools, and instructional technology according to current industry standards so that classroom instruction is delivered correctly and effectively.
- Element 9. Plan for adequate quantities of tools, equipment, and consumable supplies to equip all students at all times.

**Standard 7.** Demonstrate knowledge of experiential, project and work-based learning: Enhance student learning through continuous experiential, project, and work-based learning experiences.

- Element 1. Integrate work-based learning with the Skilled and Technical Sciences program for all students.
- Element 2. Align work-based learning to Skilled and Technical Sciences curriculum standards.
- Element 3. Assess work-based learning by measuring students' growth against a current and relevant set of career-based skills, knowledge, and competencies.
- Element 4. Create student-planned, personalized work-based learning experiences.
- Element 5. Engage students to maintain accurate work-based learning documentation to meet state and local requirements.
- Element 6. Provide direct supervision and guidance for each student's work-based learning experience.
- Element 7. Document work-based learning experiences between the student and adult supervisors.

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**Standard 8.** Demonstrate knowledge of leadership and personal development: Engage student participation in intra-curricular and leadership and personal development experiences through SkillsUSA.

- Element 1. Provide the opportunity for all students to be a member of SkillsUSA.
- Element 2. Engage students in meaningful leadership and personal development activities to build a progressive leadership and personal development plan related to Skilled and Technical Sciences.
- Element 3. Provide leadership to ensure the SkillsUSA constitution and bylaws are up-to-date and approved by chapter members.
- Element 4. Engage students in the planning and implementation of a program of work.
- Element 5. Facilitate the conduct of regularly scheduled chapter meetings.
- Element 6. Implement an awards recognition program planned and conducted by student members.
- Element 7. Provide leadership to ensure the SkillsUSA chapter has a current budget, which provides the financial resources to support the program of work.

**Standard 9.** Demonstrate the knowledge of school and community partnerships: Engage school and community partners in developing and supporting a quality skilled and technical sciences program.

- Element 1. Demonstrate knowledge of how to regularly inform key stakeholders regarding the goals, objectives, and accomplishments of the Skilled and Technical Sciences program.
- Element 2. Demonstrate knowledge of how to initiate engagement of key stakeholders with the Skilled and Technical Sciences program.
- Element 3. Demonstrate knowledge of how to recognize key stakeholders for their support of the Skilled and Technical Sciences program.
- Element 4. Participate in key stakeholder activities.

**Standard 10.** Demonstrate knowledge of program marketing: Engage key stakeholders through involvement, recognition, and the sharing of information about all components of the program.

- Element 1. Design and implement strategic marketing efforts with pieces implemented by the appropriate key stakeholders.
- Element 2. Design and implement a recruitment and retention plan that yields steady or increasing student enrollment.
- Element 3. Utilize relevant Skilled and Technical Sciences data for marketing and communication purposes.

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**Standard 11.** Demonstrate knowledge of program planning and evaluation: Design and implement a system of needs assessment and evaluation for continual program development and improvement.

- Element 1. Collect and report relevant Skilled and Technical Sciences data to key stakeholders and other entities as determined by local and state requirements.
- Element 2. Survey key stakeholders to determine their expectations and current assessment of program quality and the success of students.
- Element 3. Provide leadership for a representative Skilled and Technical Sciences advisory committee, authorized by the local board of education, to meet regularly to advise program direction and development.
- Element 4. Provide leadership for creation and implementation of a programmatic strategic plan that is based on performance data, key stakeholder surveys, and advisory committee input.
- Element 5. Develop and implement a Skilled and Technical Sciences budget that provides the financial resources to support the current and planned needs of the program.

Guidelines are based, in part, on National Quality Program Standards for Agriculture, Food and Natural Resources Education and informed by other Career and Technical professional standards (2016).